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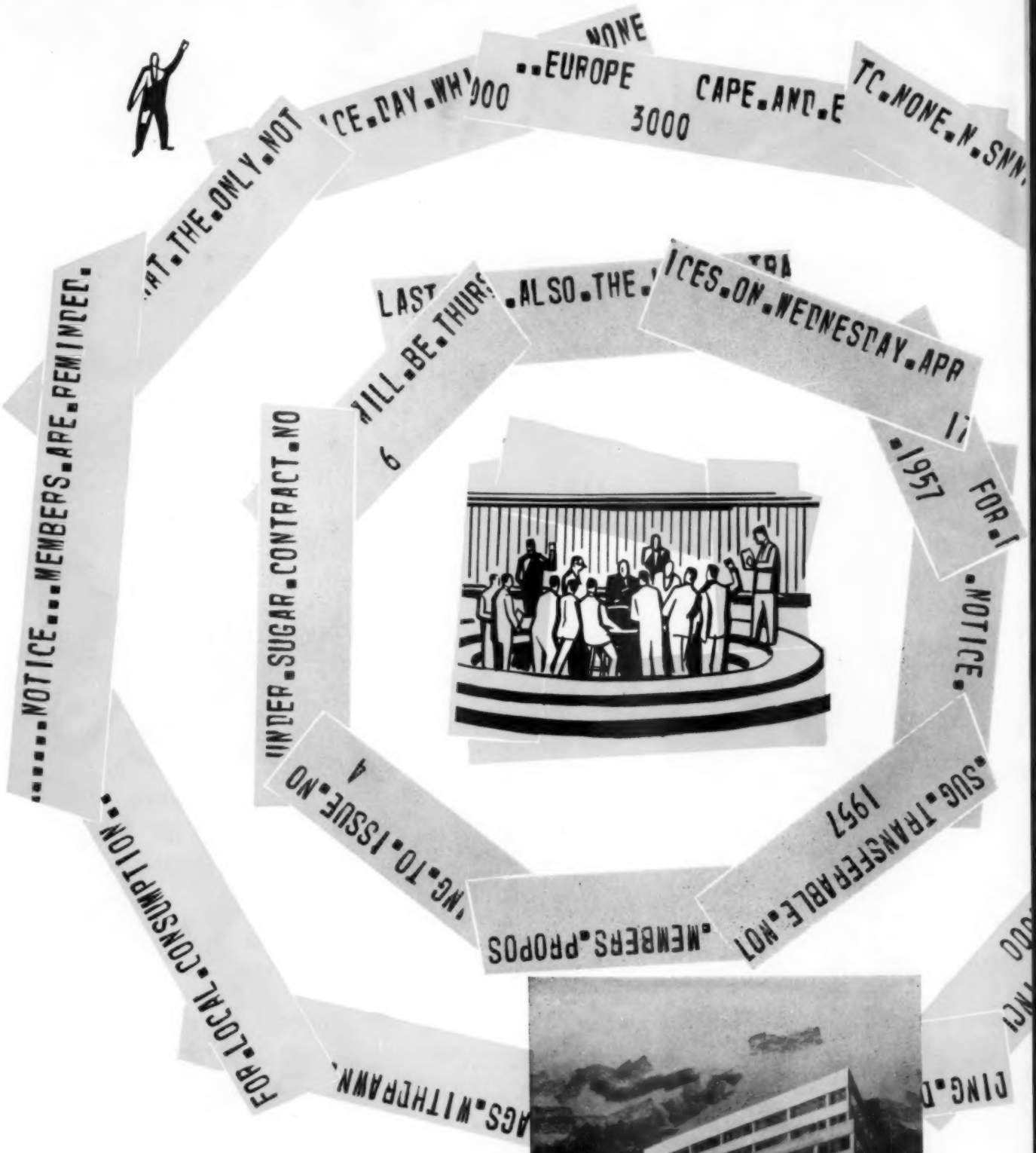

SUGAR
AZUCAR

NOVEMBER 1957

Salute to Cuba

Farval lubricates 43 of its 161 sugar mills

FARVAL—
Studies in Centralized Lubrication
No. 210

Every year, more owners prove to themselves the value of centralized lubrication. Now 43 centrals with 32% of Cuba's sugar capacity, enjoy the benefits of Farval. Farval automatic systems are standard on new mills. Old mills, too, can install Farval with profit. In fact, on an old mill or a new one, Farval can pay for itself in one grinding season with these four savings:

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3. You save bearing replacement expense, as Farval prolongs bearing life indefinitely.
4. You get extra sucrose, because with properly lubricated bearings, higher more uniform roll pressures can be maintained, for maximum juice extraction from the cane.

Farval systems are sold and installed by experienced sales agents in every sugar-producing area. For the name of your local agent, write us. Ask also for Farval Bulletin 26-S. The Farval Corporation, 3277 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm and Gear Company,
Industrial Worm Gearing
Sales representatives in all sugar-producing areas

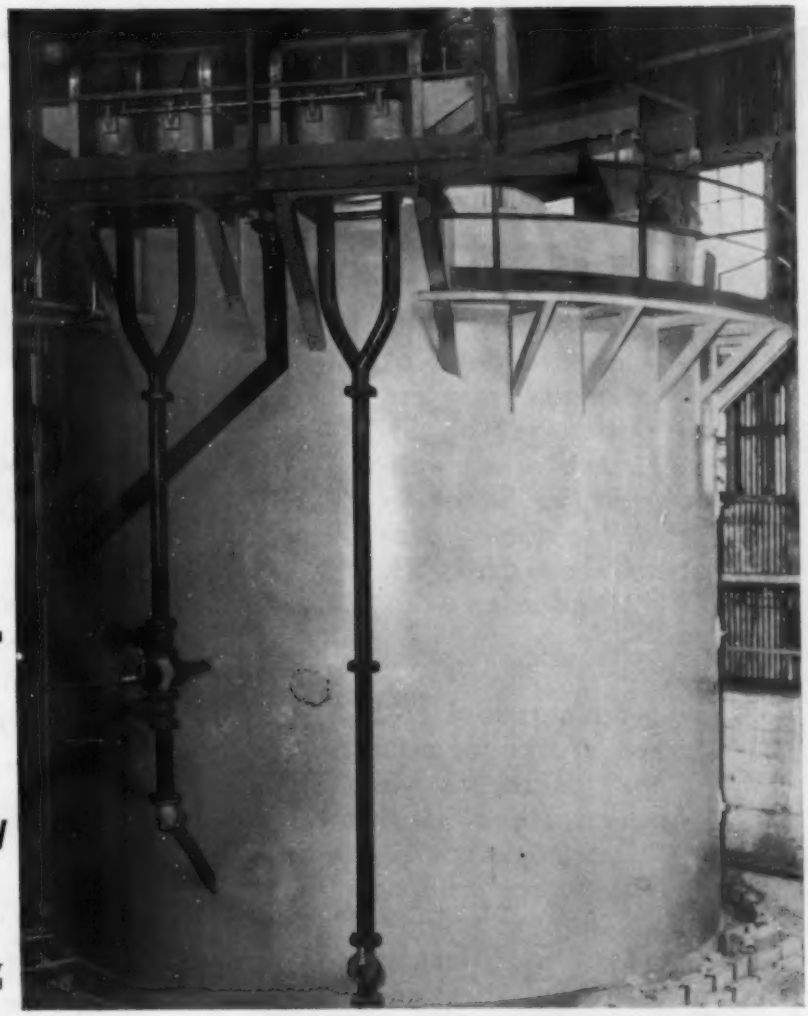
Keys to Adequate Lubrication

—When you see the signs of Farval —the familiar central pumping station, dual lubricant lines and valve manifolds—you know a sugar mill is being properly lubricated. Where sugar is big business, there you'll find Farval protecting mill bearings.

FARVAL
CENTRALIZED SYSTEMS OF LUBRICATION

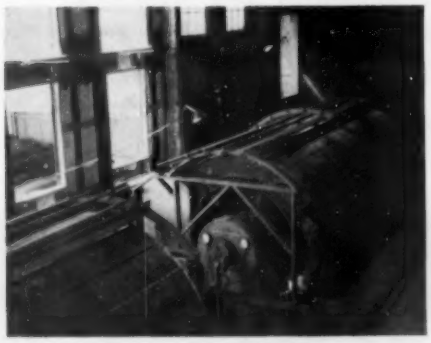
First **RapiDorr** in Hawaiian Islands...

Paia Factory Successfully Handles Juices from Mechanically Harvested Canes...



New 22′ dia. RapiDorr Cane Juice Clarifier at Paia Factory of Hawaiian Commercial and Sugar Co., Ltd.

Elevated view of the two new 8′ x 16′ Stainless Steel Oliver-Campbell Cane Mud Filters at Paia.



As part of their 1956 modernization program, Hawaiian Commercial and Sugar Co., Ltd. installed a 22′ RapiDorr cane juice clarifier and two 8′ x 16′ stainless steel Oliver-Campbell Cane Mud Filters at their Paia factory.

This newly installed RapiDorr Clarifier has a volume of 59,000 gallons and handles approximately 75% of the total juice flow. The balance of juice is clarified in an 18′ dia. Multi-feed unit having a volume of 31,400 gallons. The daily grinding rate at Paia is approximately 3,300 tons of cane.

The successful operation of the new RapiDorr at the Paia factory verifies by demonstration the excellent performance of this unit *even* when handling juices of high solids content as produced from mechanically harvested canes.

RapiDorr T.M. Reg. U.S. Pat. Off.

CANE SUGAR DIVISION — DORR-OLIVER INCORPORATED — STAMFORD, CONNECTICUT

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Sugar producers look to St. Mary Iron Works for equipment that increases yield and produces steadily with a minimum of upkeep and maintenance. For your new plant or the expansion of your present facilities, look to St. Mary Iron Works' thoroughly experienced engineers for the right job – designed, engineered and fabricated on schedule.

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★ *ENGINEERING*

★ *FABRICATION*

ST. MARY IRON WORKS

FRANKLIN, LOUISIANA · U. S. A. · *Steel Fabricators for Half A Century*

VOLUME 52, NO. 11
November, 1957

SUGAR y

CONTENTS

19 A Proper Balance between Buyer and Seller

20 New York Coffee & Sugar Exchange to New Quarters

22 Hedging for the Sugar Producer

27 Facts About Sugar

29 Imperial Completes Bulk Raw Sugar Installation

31 Human Relations

32 Abstracts of the World's Sugar Literature

COVER: *On the occasion of its 75th Anniversary the New York Coffee & Sugar Exchange moves to new and luxurious quarters. Appropriate to this occasion, the stabilizing influence of the Exchange on sugar prices and other matters pertaining to the Exchange are described in the editorials that follow. For the cover, Charles Kroger interprets familiar scenes connected with the Exchange and illustrates the new building.*

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AZUCAR

Including El Mundo Azucarero

CONTENIDO

41 Justo Equilibrio entre Comprador y Vendedor

42 Muda de la Lonja de Café & Azúcar de Nueva

44 Protegiendo al Productor de Azúcar

49 La Imperial Termina la Instalación del Sistema para el Manejo de Azúcar Crudo a Granel

51 Extractos de Publicaciones Azucareras

CUBIERTA: *En el cumplimiento de su 75° Aniversario, la Lonja de Café & Azúcar de Nueva York se está mudando a sus nuevas y lujosas oficinas. A propósito de esta ocasión, en los artículos que siguen se describen la influencia estabilizadora de la Lonja sobre los precios del azúcar y otros asuntos referentes a esta entidad. Para la cubierta, Charles Kroger interpreta algunas escenas familiares relacionadas con la Lonja e ilustra su nuevo edificio.*

NBP BFA

PUERTO RICO:
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Isabella
Puerto Rico

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Successor to Facts About Sugar and the Planter & Sugar Manufacturer. Contents of previous issues can be found by consulting the Agricultural Index Service or the Engineering Index Service. Subscription may be paid the London office at £1-15-0 per year; single copies 3/6. Published Monthly. Subscription price $5.00 per year; single copies 50 cents.

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SUGAR

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Describes various important sugar producing companies, including history, properties, capitalization, listing on exchanges, transfer agents and registrars, stock symbol, funded debt, grinding, melting, slicing or productive capacities, statistics of production, earnings, dividends, etc., 3-year comparative balance sheets and income statements and surplus accounts; officers, directors, etc. Brief synopses of about 250 other domestic and foreign sugar companies. Sugar futures statistics. Over 300 pages, cloth bound.

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Endorsements attesting to the excellence of

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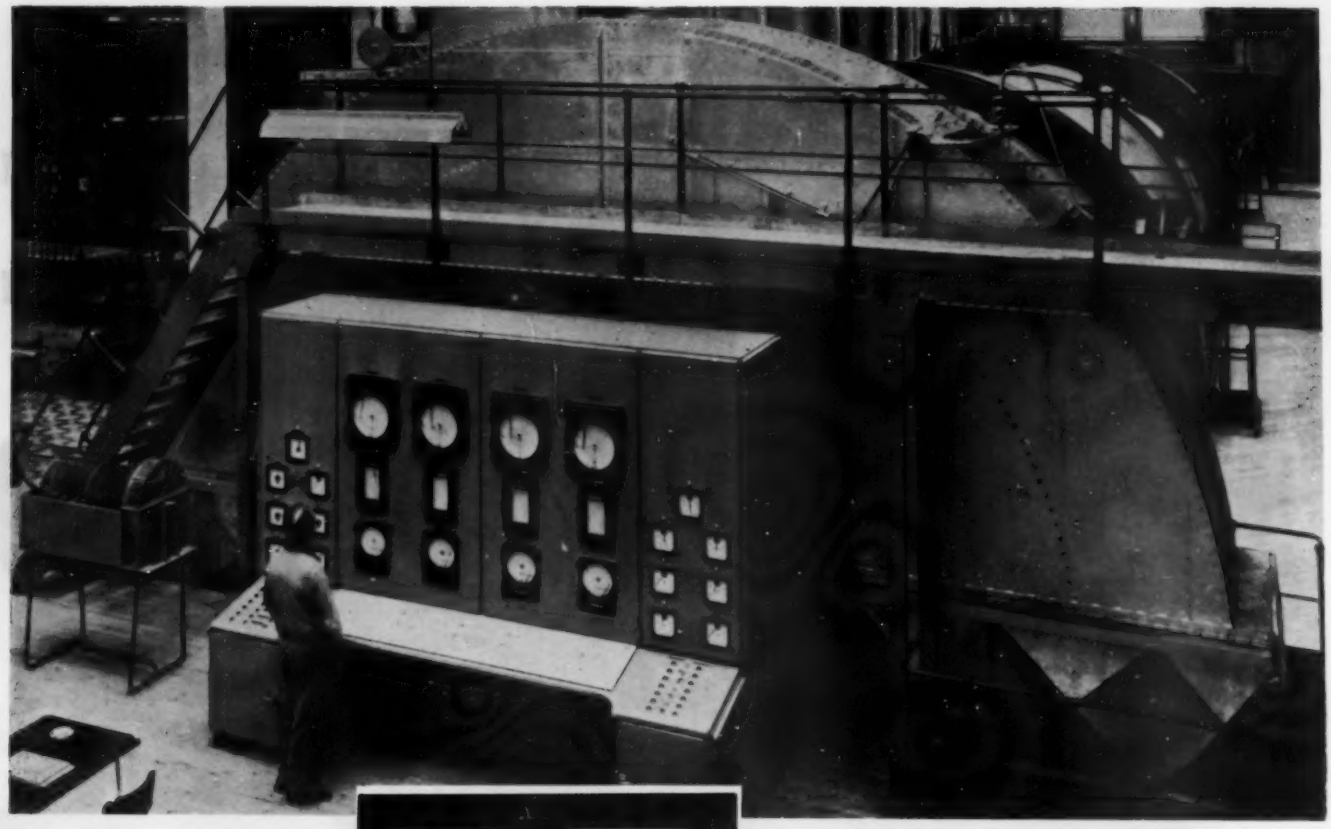

R.T. Continuous Diffuser with capacity of 3000 tons of beets per day.

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The only diffuser which includes all the following advantages:

1 Ideal flexibility of operation, with perfect regularity of results; a temporary shutdown, even a long one, has no undesirable effects.

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3 Retention time of the juice is only half as long as that of the cossettes; there are no undetermined losses during the time needed for thorough extraction of the sugar.

4 Losses of sugar in pulp, with equal juice drafts, are the least.

5 The internal structure of the diffuser comprises no moving mechanical parts.

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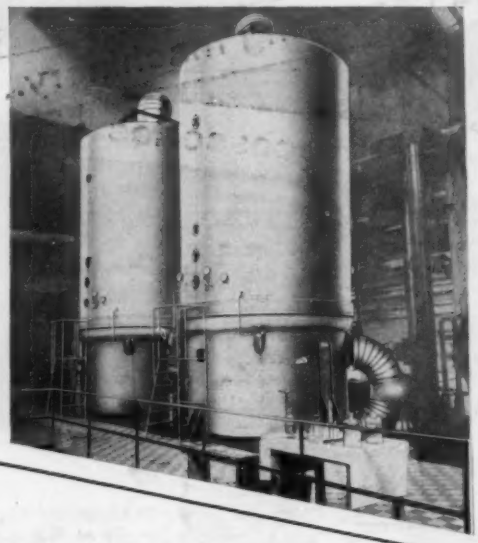
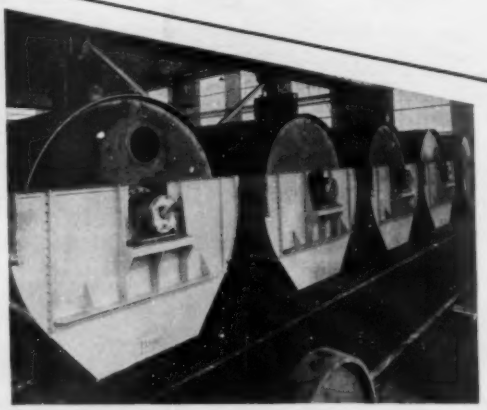


Evaporator stations fitted with „Buckau" Through-Flow Evaporators. Maximum heat exchanging efficiency, hence less heating surface is required; low juice temperatures and minor discolorisation of juice as a result of more improved construction.

Filters of Sugar Industry
BUCKAU-WOLF Cell Filters for sludge juice filtration in sugar production.



Our manufacturing schedule for sugar production comprises complete cane and beet sugar mills and all auxiliary equipments.

Your inquiries are invited without obligation.
Apply for full particulars.

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GERMANY

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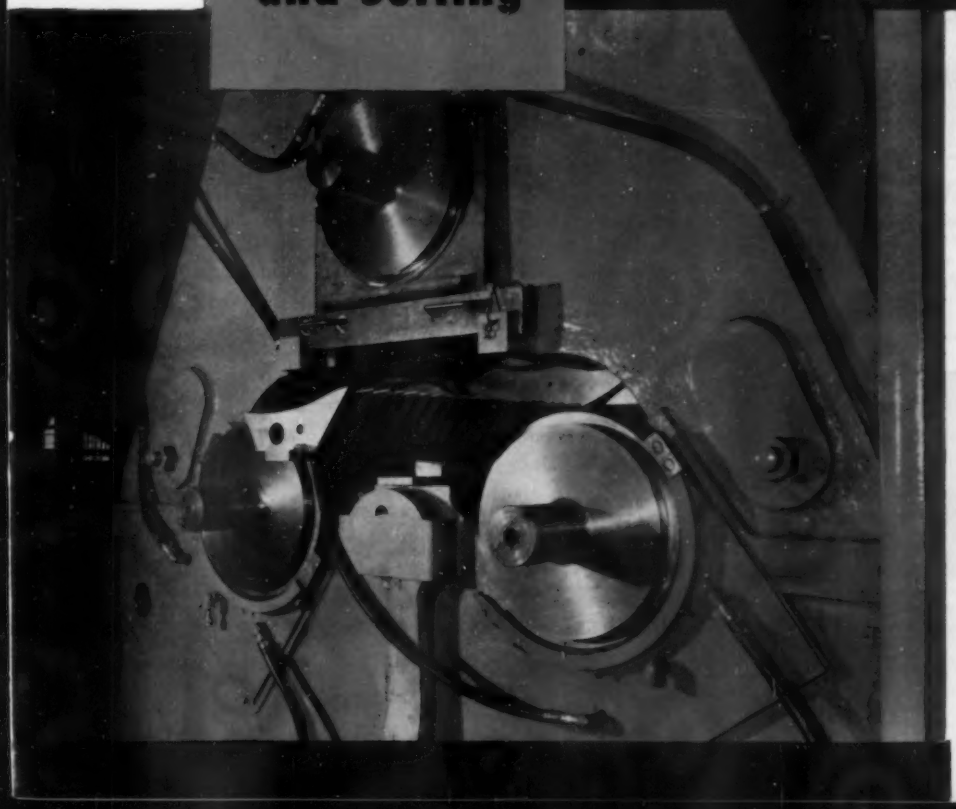
NEW SQUIER CANE MILL FEATURE!

Readily Removable Turnplate Assures Convenient Inspection, Simplified Removal and Setting



1 Housing design permits lifting of top roll to expose turnplate for inspection.

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ENGINEERS AND MANUFACTURERS

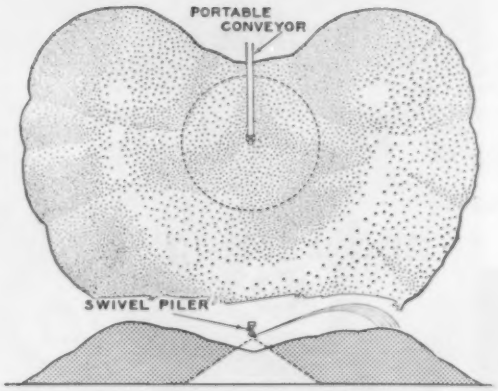
BUFFALO, NEW YORK, U. S. A.

2 With hydraulic jack removed, blocking bar safely supports top roll so turnplate can be removed and replaced.

Increase Storage Capacity up to 10 Times!

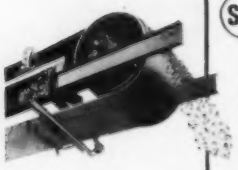
STEPHEN S-ADAMSON *CONVEYOR MOUNTED* SWIVEL-PILERS

Reduce handling and labor costs by quickly and easily mounting an S-A Swivel-Piler on the discharge end of your conveyor. Increases your storage capacity 10 times by efficiently throwing material in any direction, over an arc of 270°. Eliminates frequent and costly conveyor moves. This powerful, centrifugal-action thrower unit, furnished in both 10" and 16" sizes, handles up to 150 tons per hour of Grain, Sand, Crushed Stone, Coal, Dry Bulk Chemicals and almost any material in granular or lump form in lump sizes up to 2". User always has complete control over path of discharge.



Illustrations (above) show how the addition of an S-A Swivel-Piler will increase the storage volume of a conveyor up to 10 times, without moving the conveyor. In storing, the pile of material starts to form at the outer end of the trajectory, without any adjustment in the throwing angle.

IN STOCK FOR IMMEDIATE DELIVERY!



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Protects and extends the life of valuable belts. The spring-blade wipes wet or dry particles from belts. Adjustable to any width... easily installed ...no moving parts...no power drive required. Request Bulletin 1754.

S·A HOLDBACKS

Mounts on headshafts of belt conveyors and bucket elevators to prevent reversal under load in case of power failure. Safeguards personnel and equipment. Quickly and easily mounted... engages with instant positive grip but without shock. No ratchet to become fouled. Request Bulletin 155.

—WRITE TODAY—

... for complete information.

Request Bulletin 655

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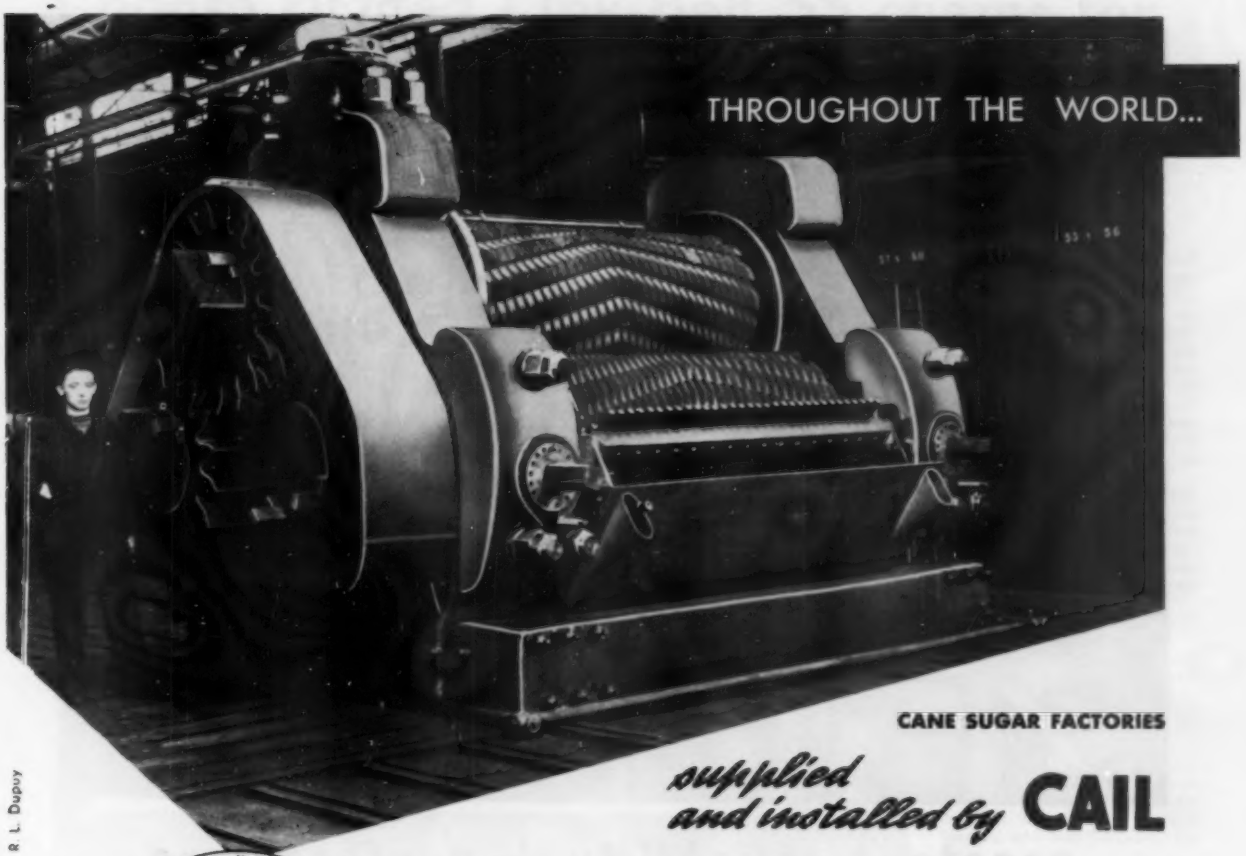

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***supplied and installed by* CAIL**

The high quality of our sugar factory machinery explains its world-wide reputation :

CAIL has supplied to all sugar producing countries of the world :

- **Complete factories**
- **Car dumpers**
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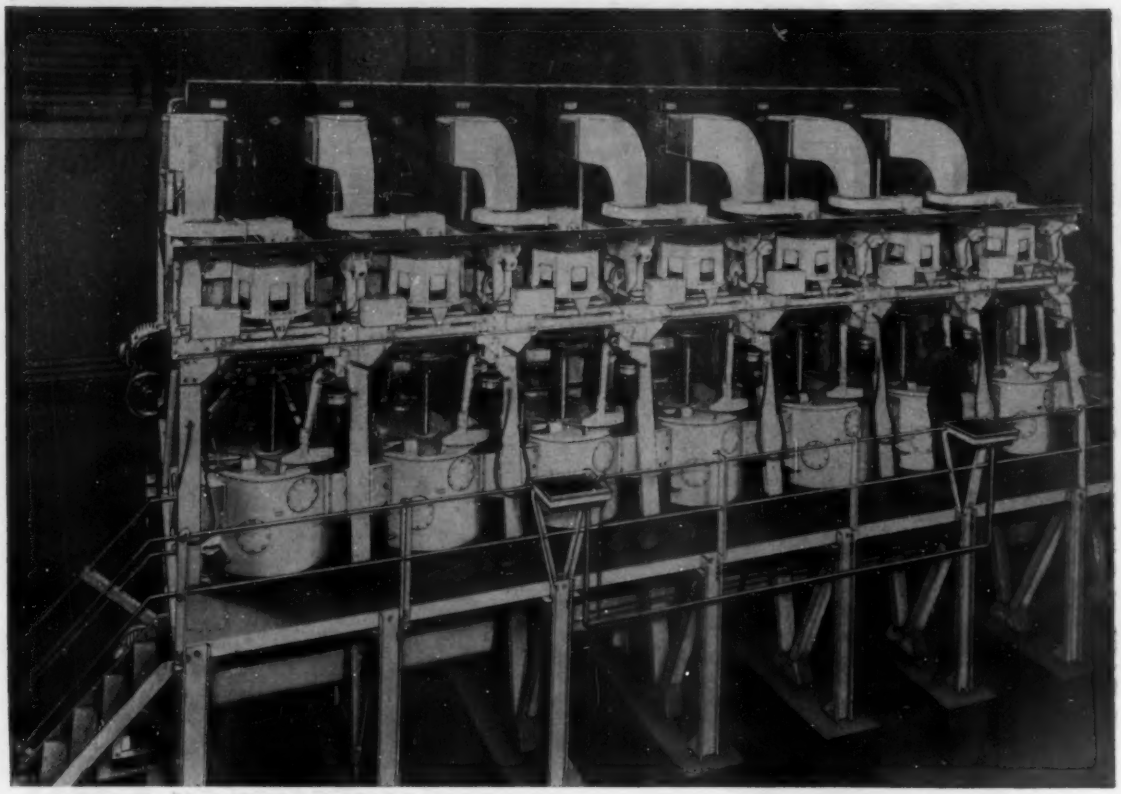

constant reliability + performance

When expanding, your first consideration is profit. Profit can only be maintained by installing centrifugals which ensure constant reliability and performance. These are two of the reasons why you should install BROADBENT.

In addition these centrifugals are powered by BROADBENT MOTORS designed for centrifugal duties and all accessories and controls are built to last, eliminating costly shut-downs. It is more profitable and easy to expand with . .

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•Represented in most sugar producing areas

Choose rugged Link-Belt SS chains for long, grueling bagasse carrier runs

LINK-BELT SS-2184 CHAIN is recommended for conveying heavy loads of bagasse over long distances. Its offset sidebars permit easy removal or replacement of individual chain links. For shorter center conveyors and lighter loads, choose Link-Belt Class 1100 malleable or Promal chains.

Specially designed steel chains offer extra wear-life

The uniform strength and greater durability of Link-Belt SS bushed roller chains help modern sugar mills reduce the per-ton cost of handling bagasse. Use of selected steels plus controlled manufacture and assembly of parts provide the economical answer for long, heavy-duty conveyors reclaiming and feeding bagasse to storage or boilers.

Link-Belt bagasse carrier chains have average ultimate strengths ranging from 26,000 to 43,000 lbs. This range permits matching the right chain to specific load requirements . . . cuts operating cost . . . reduces replacements and maintenance.

Chains provide large bearing surfaces for increased wear life. Sidebars are accurately formed from selected steel and machined for tight press fit of carefully sized steel pins and bushings which are locked against rotation in sidebars. Steel rollers are accurately machined for smooth turning and case-hardened for wear resistance.

For facts, call your Link-Belt representative or write direct.

Link-Belt offers a complete line of chains for other sugar mill service

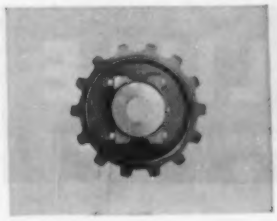
HERE ARE JUST A FEW:

Class C combination malleable and steel chains for feeding tables . . . *Class SS and LXS steel roller chains* for main cane carriers, bagasse carriers and for heavy-duty drive service . . . *Class 900 malleable, Promal, bronze and stainless steel chains* for intermediate cane carriers . . . *Class 400 pintle malleable or Promal chains* for juice strainers. Let Link-Belt help you select the right chain for your needs.

CLASS SS STEEL CHAINS (6 and 8 in. pitch sizes) are properly proportioned for maximum average ultimate strengths ranging from 47,000 to 125,000 lbs. . . . assure cost savings for carriers of all capacities.

CLASS 900 CHAINS (Promal, malleable, bronze or stainless steel) are ideal for intermediate carriers. Outside driving lugs eliminate jamming of chain and sprocket when bagasse packs in center of link.

LXS STEEL CHAINS are used for drives with high-impact loads. Their "full-round" pins, bushings and pitch holes eliminate stress concentration points . . . provide maximum live bearing area for long life.



SPROCKET WHEELS

Link-Belt's broad line of cast and cut tooth sprockets permits exact matching of wheels and chains for low-cost, long-lasting drive and conveyor efficiency. Wheels are available in various metals and hub and bore diameters—in solid or split arm or plate centers.

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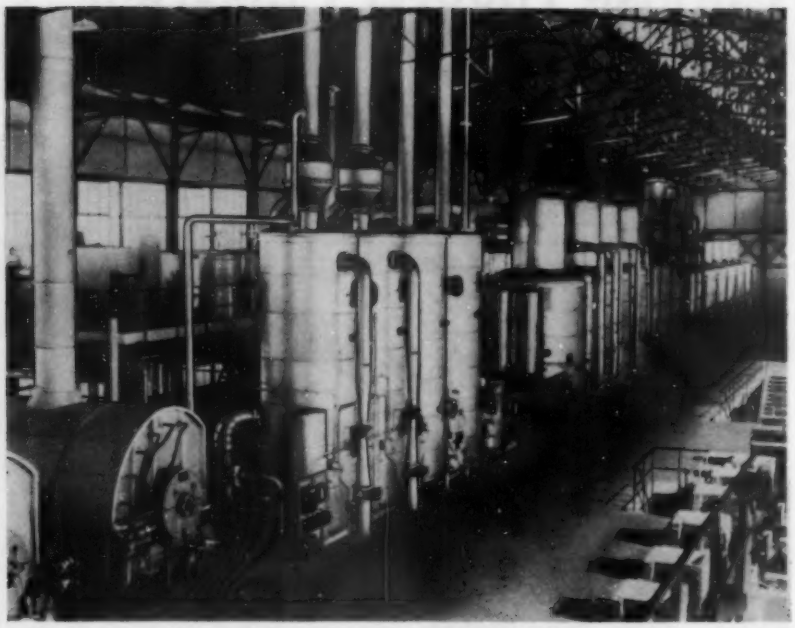

Inside view of the Malatya Sugar Mill (Turkey)

SUGAR FACTORIES ERECTED THESE LAST 10 YEARS

BEET

	T/day
France	
Artenay	1200
Cagny	800
Corbeilles-du-Gatinais	1200
Origny-Ste-Benoite	900
St-Leu-d'Esserent	1000
Algeria	
Mercier-Lacombe	300
Turkey	
Kayseri	1800
Malatya	1200

CANE

	T/day
Bolivia	
Guabira	1000
Brazil	
Jacarezinho	600
Matosinhos	800
Vassununga	1000
Uruguay	
El Espinillar	1200
Venezuela	
Ureña	700
Madagascar	
Ankaratra	2500
French Congo	
Niari	1150
Belgian Congo	
Uvira	1200
Thaïland	
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Wyandotte reports on:

Increasing sugar yields without major equipment changes

How to control sucrose losses in the mill train

An exclusive Wyandotte anti-enzyme agent, STERI-CHLOR 4X, increases sugar yields by reducing sucrose inversion, and preventing dextran infection.

STERI-CHLOR 4X inactivates the sucrose-inverting enzymes contained in mill slimes and stale bagasse debris, thus reducing juice contamination and giving minimum glucose coefficients.

PHOTO COURTESY OF CENTRAL ALAVA, BANAGUISES, MATANZAS, CUBA.

Typical STERI-CHLOR 4X system in operation.

By killing microorganisms at infection points in the mill train, this potent germicide controls Leuconostoc infection, the cause of dextran problems. STERI-CHLOR 4X increases sugar yields by as much as 3½ tons per 1,000 tons of cane ground . . . giving users increased profits up to $100,000 annually.

STERI-CHLOR 4X is noncorrosive, cannot harm metals or mill equipment, and it requires only nominal equipment costs for use.

How to reduce sucrose losses in the bagasse

If you are experiencing sucrose losses in the bagasse, Wyandotte EXTRAPOL — a unique, 100%-active surface-active agent — may be just what you need.

Although EXTRAPOL is not a cure-all, it has proved beneficial under certain adverse operating conditions. For example, when:

1. There is 3%, or more, sucrose in the bagasse.
2. The percentage of maceration water to cane is below average.
3. Juice heaters or evaporators are overloaded.
4. The mill train doesn't allow enough time for the maceration water to penetrate the bagasse blanket before it enters the mill rolls.

Added to the maceration water, EXTRAPOL produces faster, more thorough penetration of the bagasse, cutting sucrose losses as much as 10%, and increasing extraction rates by an average of 0.5%.

EXTRAPOL can be put into use with only a small tank and an inexpensive proportioning pump, and users report that 24 pounds is all that is needed per 1,000 tons of cane. In one mill grinding 500,000 tons of cane, savings from the use of EXTRAPOL are more than $15,000 per year.

If you are interested in a more detailed explanation of the advantages of using STERI-CHLOR 4X and EXTRAPOL, why not fill out the coupon and send it today?

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J. B. FORD DIVISION

Wyandotte Chemicals Corporation
Export Dept. 2504
Wyandotte, Michigan, U.S.A.

Gentlemen:

Please send me details on how STERI-CHLOR 4X and EXTRAPOL increase sugar yields. I prefer data in
☐ English ☐ Spanish

Name_____ Title_____

Firm_____

Address_____

City_____ State_____ Country_____

Note: Attach details about your mill's operation for more specific information on what these Wyandotte products can do for you.

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This means that Bethlehem is a thoroughly dependable supplier—willing and able at all times to serve your needs. And it is easy to do business with Bethlehem, for our large network of friendly offices and representatives is spread to all corners of the globe. Bethlehem Steel Export Corporation, 25 Broadway, New York 4, U. S. A. Cables: "BETHLEHEM, NEWYORK."

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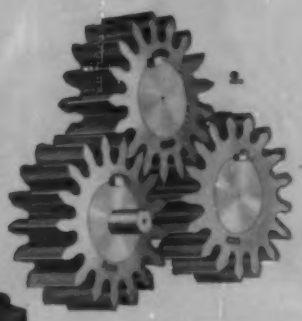

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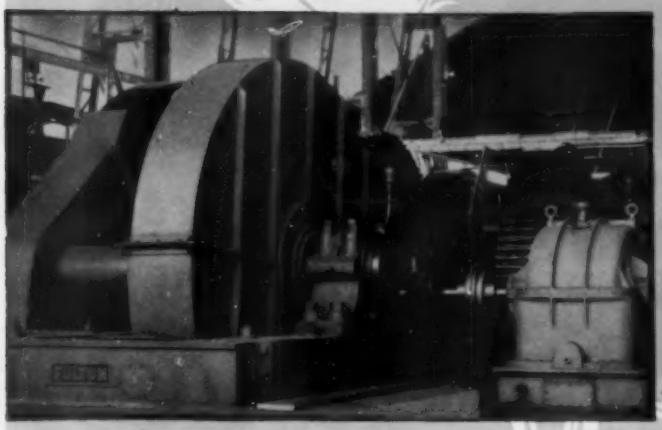

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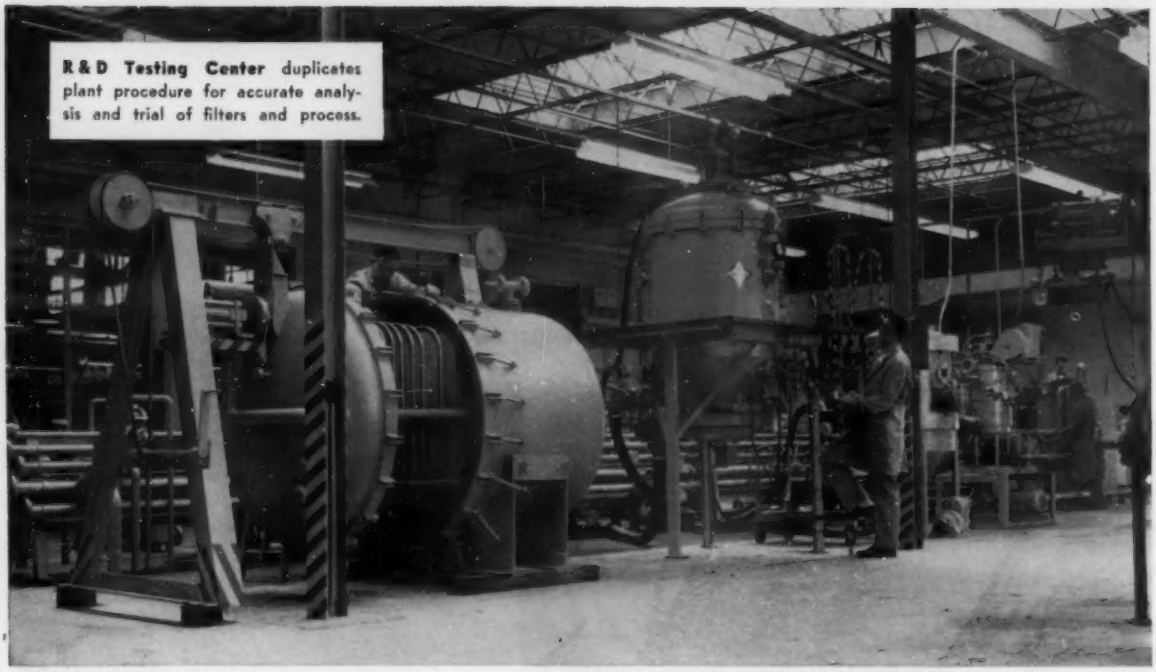

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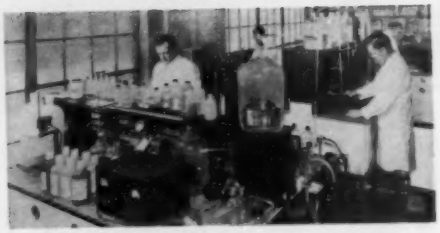

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A Proper Balance . . .

Between Buyer and Seller

When the suit originated by the Department of Justice looking to suspension of trading in sugar futures in 1923 finally reached the Supreme Court, Chief Justice William Howard Taft, in delivering his opinion said:

> ". . . the usefulness and legality of sale for future delivery and of furnishing an Exchange where under well defined limitations and sales, the business can be carried on, have been fully recognized by this Court. . . . Those who have studied the economic effect of such exchanges for deliveries generally agree that they stabilize prices in the long run instead of promoting their fluctuation."

Leon Israel, Jr., a member since 1929, and now President, of the New York Coffee and Sugar Exchange comments briefly on this page on the function of a commodity exchange and how this market can help the grower, refiner and large user of sugar.

Most enterprises, industries, or activities today are appraised by their so-called economic justification or their social desirability. The futures market in sugar, has often been brought into question under this same rigid test. Charges that the New York Coffee and Sugar Exchange promotes gambling and price manipulation to the detriment of the consumer of these commodities are among the prime fallacies of those who criticize the existence of this market. The facts are that critics of the marketing system are not aware as fully as they should be of the functions performed or fulfilled by this market.

In any organized society it should be clearly understood and agreed to by all that there must be necessarily, a proper balance or relationship among production and consumption, or seller and buyer. But production and consumption are not the whole story. There must be orderly distribution as well. For example, there might be millions of tons of raw sugar produced in the sugar producing countries, and there might be millions of tons of sugar consumed, currently, by the American market. But, this consumption would be largely from warehouse or stored sugar. Whereas the sugar grown or produced would be a few thousand miles away from the point of consumption. If there were no orderly way of getting that sugar to the market for next year's consumption, the result would be chaos. There would be here at home, a lively and hungry market bidding for what supplies were immediately available, and abroad, in the sugar growing countries, sugar would be a glut on the market. Therefore, it is obvious that some method of future buying is necessary in order to assure a continuous and steady supply of the raw products for the refiners here at home.

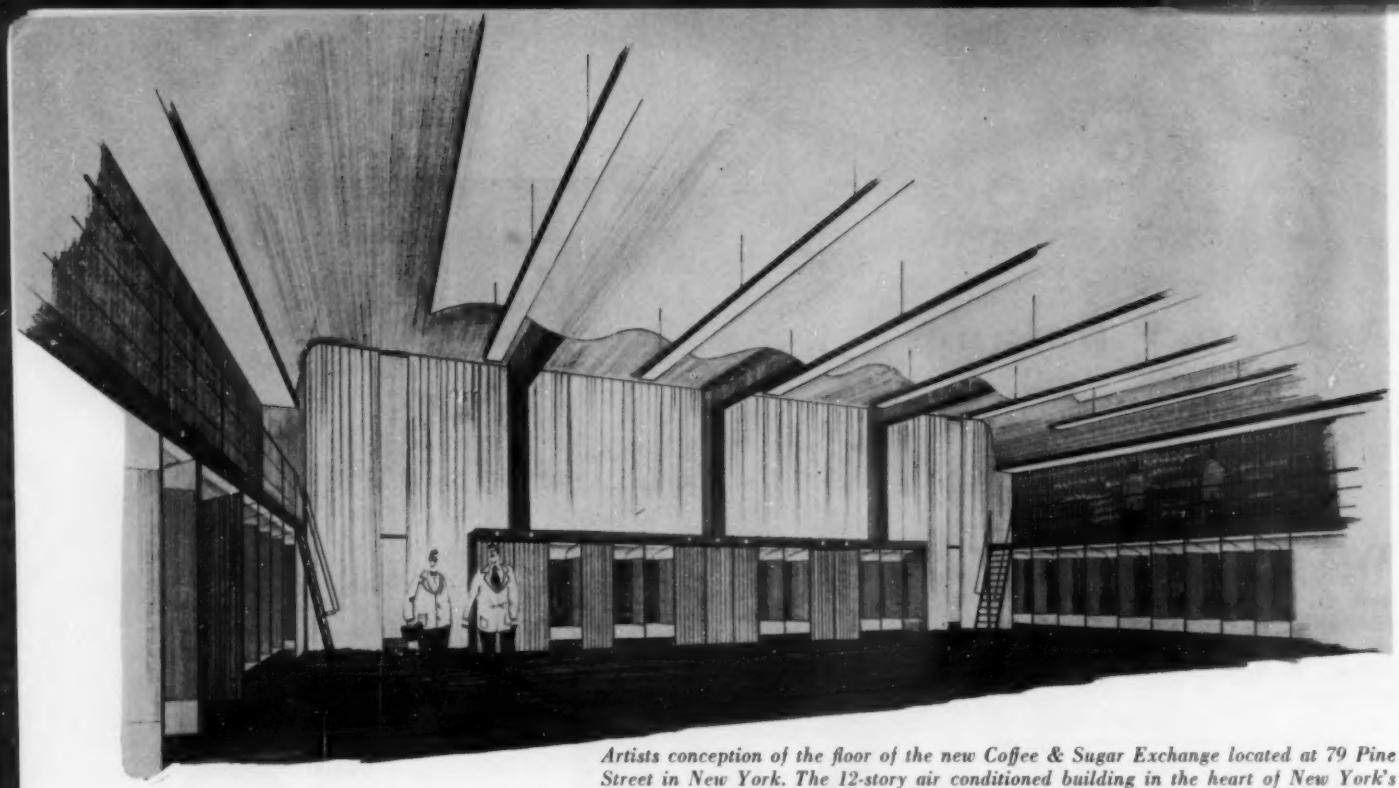
That is the gap that always exists between producer and consumer, and that is exactly the gap, regardless of terminologies or little understood formula, which the New York Coffee and Sugar Exchange fulfills. A sugar refiner anticipating his market for next year must recognize the time lag between crop gathering and readying that crop for the market and prepare accordingly. Therefore, he has to buy sugar futures; that is, buy against future delivery in order to assure himself of adequate supplies of raw materials. By the same token, the grower of sugar must have some assurance of his ability to sell his product at the time it is ready for market. Therefore, if he can have firm orders placed for his product before the seed is planted in the ground, he can proceed with some assurance of economic security.

This is the function that the New York Coffee and Sugar Exchange futures market fulfills. The farmer or grower having an assurance of the market based upon future orders which are placed, can borrow monies against his future crop and help finance the growing period. The refiner, on the other hand, can feel secure with proper commitments that he will have an adequate supply of raw materials from which to produce the refined or finished product for domestic consumption. It is upon this simple premise that the New York Coffee and Sugar Exchange, like the Chicago Board of Trade, the Minnesota Grain Exchange, and the Kansas City Board of Trade also are founded.

One generally misunderstood or little understood principle often erroneously charged against the commodity exchanges, is that the exchanges make prices. The exchanges are no more than meeting places where buyers and sellers meet through their respective agents, at arms length. The buyer wishes to buy sugar for future delivery, let's say next March, or April, or May, and the seller's agent wishes to sell. Thus they dicker and trade until a meeting of minds is arrived at and finally the sale is consummated. The process is just that simple. There is nothing any more complicated about it than shopping at your nearest supermarket. The shopper enters the store and sees the marked prices upon those wares that are exposed for sale. If she does not want to pay the amount on the price tag, she passes it up. If she does, she takes it to the cashier which signifies a meeting of minds and the sale is completed.

LEON ISRAEL, JR.

President, New York Coffee & Sugar Exchange



Artists conception of the floor of the new Coffee & Sugar Exchange located at 79 Pine Street in New York. The 12-story air conditioned building in the heart of New York's sugar trade was designed specifically to accommodate the 75-year-old Exchange.

History and Function

New York Coffee & Sugar Exchange to New Quarters

THE New York Coffee & Sugar Exchange, Inc., now celebrating its 75th anniversary by moving into its newly-constructed home, is essentially like all other commodity exchanges—simply a market place where prospective buyers and sellers, or their representatives, meet to do business.

How did the exchange come about—and what are its principal functions?

Actually, the Exchange was born out of necessity. In 1880, chaos reigned in the coffee trade in New York. Supplies in the hands of importers mounted and could not be sold except at great sacrifice. The world market became completely demoralized. It became apparent to a group of young coffee merchants that new methods of doing business be found, that orderly trading be restored and faith replace the suspicion that swept the market.

After a series of organizational meetings, the New York Coffee Exchange was incorporated on Dec. 7, 1881, and first opened its door for business on March 7, 1882.

During the First World War, the sugar futures exchanges in London and Hamburg (then the world sugar trading centers), upon which the world had come to rely, were forced to close and the world sugar trade suddenly found itself without facilities. Recognizing the need for such a stabilizing influence, the Coffee Exchange expanded its facilities to include trading in sugar futures. Thus, on Oct. 1, 1916, it officially took on its present name.

The Exchange is a non-profit organization, a fact which always seems to surprise some people. It does not buy anything. It does not sell anything. It's merely a marketplace for people who wish to buy or sell. The exchange does not, therefore, set prices. Instead, it reflects prices which are established as a result of competitive bidding on the exchange.

Every single transaction on the exchange —even though limited to a single buyer and seller—reflects, however slightly, the value placed on the commodity at that particular time. Thus, there is a continuous day-by-day and hour-by-hour reflection of the trends developing in the sugar trade.

Members of the exchange have one common overall goal: maintenance of free and open trading, on an equal basis for everyone. Thus the original conditions on which the exchange was formed are fulfilled.

Briefly, the main functions of the exchange can be summarized as follows: (1) to provide and maintain an orderly marketplace for the purchase and sale of exchange products; (2) to establish just and equitable principles in the trade and maintain uniformity in its rules and regulations; (3) to adopt standards of classifications; (4) to gather and publish prices and other pertinent information about the industry; and

Charles S. Lowry, vice president of the N. Y. Coffee and Sugar Exchange. Well known in the sugar trade, Mr. Lowry is president of Lowry & Co., a partner in Frank C. Lowry & Company and a director of South Porto Rico Sugar Company and of the National Sugar Brokers Assn.

(5) to supervise the operations of those who use the facilities of the exchange.

Of the many benefits, one of the most important is what is known as "hedging." This is a form of commercial insurance designed to guard against losses, and safeguard bank credit. It may merely involve the passing of a risk from one member of the trade—a producer, refiner or merchant—to another member, as when a grower of sugar wishes to sell a futures contract to insure him against loss of his growing commodity, and a refiner of sugar wishes to buy a futures contract in order to protect his inventory. One makes a hedge sale, the other a hedge purchase. Or, it may require the passing of the risk by a producer, merchant or consumer to a trader who buys in anticipation of a rising price or sells in anticipation of a fall. For example, when a dealer *buys* a commodity for future delivery, he *sells* an equal amount of it for immediate delivery. Thus, one transaction counterbalances the other. As a result, the element of risk through a futures transaction is reduced to a minimum.

Here are a few of the many traders who find the exchange futures market of vital importance in conducting their daily business:

The Producer—on hedges before, during and after harvesting, depending on price and market conditions.

The Exporter—who may have bought from the producer, and wishes similar hedge protection.

The Importer—who usually wishes to cover the "time" risk, during the period from the time of purchase until goods are actually received and/or sold.

The Processor—a refiner who wishes an inventory hedge to protect excess stocks—or to cover a short sale of the manufactured commodity to the wholesaler or consumer.

The Merchant—usually the large industrial user or the wholesaler who wishes to protect floor stocks or to cover a forward short sale.

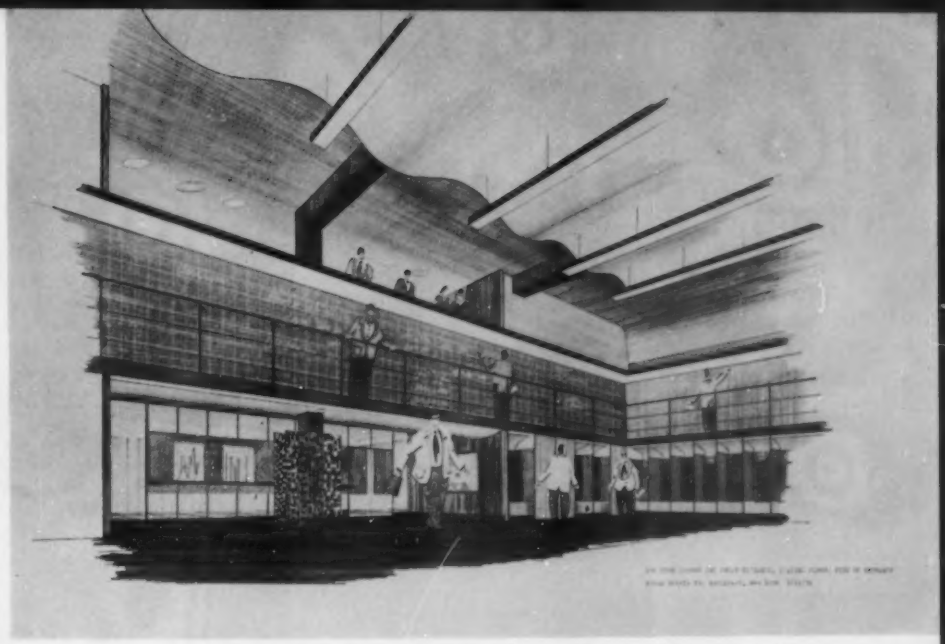
One important benefit of the exchange for a sugar refiner is its capacity to eliminate, to a large extent, the hazards entailed in a large inventory. For example, in the tense situation that exists throughout the world today, the pattern of refined sugar distribution is often abnormal and unpredictable. Under such conditions, the refiner is sometimes obliged to carry large stocks of raw and refined sugar, to be in a position to fulfill all commitments. By selling sugar futures on the New York Coffee and Sugar Exchange, however, he can decrease the inventory risk that normally would ensue from such a practice.

Conversely, should world tensions increase, resulting in a sharp and unusual increase in demand, the refiner can protect himself with purchases of sugar futures. He may either take delivery or, prior to delivery date, liquidate his futures contracts and fill his customers' orders by making spot purchases of raw sugar.

All contracts made on the exchange must be cleared through a Clearing Association, an organization separate from the exchange itself. Prime function of the Association is quite similar to that of a clearing house for banks. Each clearing member must advance to the Association a specified amount of funds which constitutes a "guaranty fund." These funds may be used for payment of any loss or damage to the Clearing Association resulting from default of any clearing member, thus providing protection for the association, the member and the customer.

The exchange is operated by a board of governors that works through approximately 20 committees. The by-laws provide methods of policing the transaction, regulating margin requirements, placing limitations on daily price fluctuations, strict grading procedures and methods of settling disputes arising out of any contract.

Having outgrown its quarters at 113-117 Pearl Street, the exchange is moving to its new home in a newly constructed, ultra-



Everything about the new building to be occupied by the N. Y. Coffee & Sugar Exchange was designed to facilitate trading. Note, easily accessible phones for members, spacious and modern decor.

Gustavo Lobo, center, former president of the Coffee & Sugar Exchange explains the operation to Oscar Ledesma, Philippine Secretary of Commerce and Industry (right) and Salvador Oliveros, technical consultant to the Philippine Sugar Institute on the floor of the old exchange building at 113 Pearl Street.

modern building at 79 Pine Street. The exchange will use space on the mezzanine, second and third floors of the 12-floor, fully air-conditioned structure.

The structure will have a masonry and glass-panelled exterior, high-speed electronically-operated elevators, basement parking for 40 tenant automobiles and windows fronting on three streets.

The exchange's phone system is of critical importance since during each trading session the traders rush from the pits to their private phone booths to check customer reactions and to get directions for future trading. Accordingly, the phone booths have been arranged on all four sides of the trading floor and located close to both pits.

The new trading boards can be easily seen from both pits, and the gallery railing which extends around three sides of the floor. Gallery is made of light steel construction so that it can fulfill its purpose of acting as a railing and permit full visit of the boards, part of which are below the railing height.

Thus in meeting the primary functions of the exchange, the new quarters become the first completely integrated design for a commodity exchange. The layout and design were influenced by three major factors: functionalism, efficiency and economy.

Henry George Greene is the architect for the building while Edwin Harris, Jr., architect for the exchange has designed the trading area to combine the features observed in a special nationwide survey of exchange facilities. William A. White and Sons is managing and renting agent for the new building.

Officers of the exchange include Leon Israel, Jr., president; Charles Lowry, vice-president; G. W. Knauth, treasurer; Frank E. Hobson, secretary and A. D. Corbett, executive secretary.

Hedging for the Sugar Producer

By Arthur H. Lamborn, Jr.

Lamborn, Riggs & Co., Sugar Futures Brokers

New York, N. Y.

TRADING in sugar futures is a big business and an important one. It occupies the exclusive attention of a large group of trained market experts. It looms large in the consciousness of the great majority of those engaged in the production and sale of the world's huge sugar crops.

And well it might, for the New York Coffee & Sugar Exchange, Inc. is the nerve center of the world sugar market where there come into play on a minute to minute basis the myriad influences which establish the price of sugar.

Millions of tons are traded each year and prices are established for delivery as much as seventeen months in the future, materially helping producers and industrial sugar consumers to plan for long periods ahead.

An intricate mechanism has been created for handling and executing orders, for collecting and disseminating information, and to protect the interests of all, be they large or small, who participate in the market. The sanctity of contracts is protected by rigid regulation of margin deposits.

What we will be concerned with here, however, is not the functioning of the Exchange, but the subject of hedging, with particular emphasis on the role which it can and should play in the sucessful marketing program of the sugar producer.

Hedging Is Not Speculation

Strange as it may seem, there is still a school of thought (fortunately dwindling) in the business community which views the futures market with suspicion, apparently feeling that, at best, futures are a risky proposition and are not a truly representative market. This attitude would appear to be an extremely narrow one, but still it *does* exist.

As a matter of fact, there are those who dismiss the futures market entirely or hold that dealing in futures is nothing more than rank speculation. Nothing could be farther from the truth. What could possibly present more of a speculation than a producer or user sitting on a pile of unhedged sugar? The price risks to which he is exposed are obvious.

What is not recognized by this group is the opportunity which is provided both producers and users to eliminate this risk by buying and selling sugars for future deliveries on an organized Exchange where they can find demand and supply at all times. Fundamental to the whole concept of hedging in futures, of course, are the advantages gained by a producer in making sales in a forward delivery market when the spot actuals market may not be able to absorb his offerings.

Another purpose of this article, therefore, will be to lay at rest the unfounded suspicion that trading in futures is the equivalent of speculation by showing how the market for *raw sugars*, or *actuals* as some choose to call them, is closely interrelated to the market for futures, and how one is clearly dependent upon the other. Perhaps it would be better to lay the foundation for our treatment of hedging by first examining the relationship between raws and futures.

Raws and Futures Are Closely Related

It is important to understand that raws and futures are readily translatable, raws into futures and futures into raws, on a strictly commercial basis. In the case of both the world and the domestic futures contracts, provision is made for delivery and receipt of raw sugars against futures commitments. In the case of world sugars, delivery may be made in certain licensed warehouses at stipulated Cuban ports or in bonded warehouses at Norfolk, Virginia, for sugars of other than Cuban origin. The Norfolk delivery, however, has never been utilized, the trade having found that deliveries at Cuban ports are more practical and desirable. Recently, by a vote of the membership of the Exchange, the world contract was broadened, effective January 1, 1959, to include deliveries at ports other than Cuban, subject to meeting certain Exchange requirements. In the domestic market, deliveries against futures positions are effected on an ex-ship basis in the port of New York.

Deliveries against the contract, however, are more the exception than the rule. The majority of the trade interest utilizing the Exchange find it more convenient to liquidate their futures positions by buying in or selling out their commitments, as the case may be, without going through with delivery or receipt on the Exchange. The methods by

which this is accomplished will be dealt with subsequently in this article when we discuss practical examples of the various hedging procedures. Suffice it to say for the present that an insignificant quantity of sugars is tendered on the Exchange as compared with the over-all volume of trading. For example, only 70,850 tons were delivered against positions in world futures this year to August 31 compared with a trading volume during the same period of 7,657,100 tons.

The holder of actual sugars, then, can be assured that in selling on the Exchange, or in replacing sales of actuals by purchasing contracts on the Exchange, he is dealing in a market which very closely reflects the value for raws. There are many times, however, when a higher price is available for a seller on the Exchange market than may be had in the market for actuals, the reason for this being that the futures market many times will run ahead of the market for actuals as the sensitive mechanism of the Exchange market discounts events which will have their effect on sugar prices. The converse holds true for buyers.

The fact that the floor of the New York Coffee & Sugar Exchange, Inc. is a continuing and public market during the hours of trading lends a considerable degree of stability to the entire complex of sugar trading. Quotations and offers on raws for forward delivery are always closely based on the futures value for the position in question. The question of whether futures makes the price for raw sugars, or vice versa, is like asking which comes first "the chicken or the egg". At one time or another, either market can be a dominant factor in making price, but it is still inevitable that the two markets must show a very close relationship, particularly in the competitive trading which rules in our modern day sugar market. Of course, there are differentials between spot raws and various forward futures months. For example, the domestic market almost always provides premiums for the distant positions. In the world market we have had both premiums and discounts for the forward deliveries, depending upon the way buyers and sellers feel about the market. However, premiums for the distant positions have been the exception rather than the rule in recent years.

The Raw Sugar Spot Price

We have yet to examine one other important feature of the actuals or raw sugar market, namely the spot price. The spot price, as fixed daily by the New York Coffee & Sugar Exchange, Inc., is used extensively in the pricing of sugar contracts both in the world and domestic markets. The most significant and important application of the spot price today is in the settlement which takes place between producers and cane farmers (called colonos), and in the sale of crops by mills to operators (merchants) or final buyers. However, often the spot price is thought to be the *sole* value of raw sugars for the particular day in question. During the course of the day's trading, the value for actuals as well as futures, may vary considerably from the spot price which is fixed at a specified time each day and which reflects the then current market. This will become readily apparent if the accompanying charts are closely examined. It will be seen that the daily futures range, in most cases, varies considerably when compared with the spot price value. It might be closer to the truth to say that the raw sugar value for any given day falls within the range shown for the spot futures position. Broadly speaking, however, it is obvious that the trend of the spot price and the nearby futures position value follow one another rather closely.

Advantages of Hedging

Having examined briefly the relationship of the raw market to the futures contract, what then are some of the specific advantages of hedging on the Exchange? In the first place, as we have pointed out, there may very well be variations between the raw price and the futures value, and it is these fluctuations which give the intelligent producer an opportunity to sell or buy at better than the going raw market value. Secondly, there is the ability of a producer to achieve a more satisfactory average price in his futures operations by virtue of being able to sell or buy in quantities as small as 50 tons. Thirdly, we would emphasize the greater flexibility that the producer obtains in his marketing program through the use of the Exchange. Most important, of course, is the insurance value inherent in hedging which is the prime reason for the existence of the Exchange.

The Raw Sugar Sales Hedge

The most familiar type of hedge is what we call the straight hedge sale. This transaction involves the sale of futures contracts against forward production at prices which are attractive to the producer. An operation of this type serves as protection against variations in the market. Hedges are normally closed out at the time of the sale of raw sugar against which the hedges were originally put out.

As an example of the sales hedge, a producer decides to hedge a certain quantity of sugar in a forward futures position. He does this by making a sale on the Exchange of a quantity of sugar at a price or prices acceptable to him. In many cases, selling orders are placed so that each point improvement in the market enables him to sell a part of the total quantity which he wished to market. When his selling program has been completed, the only step remaining is to sell the actual sugar at some later date. Simultaneously with the sale of raw sugar, the futures contracts are purchased or covered, thereby closing out the transaction. After taking into account the loss or profit on the futures and the sales price of the raw sugar, the net result will be a return to the producer approximating the price of his hedge sale.

In this connection, it is important to realize that a *profit* or a *loss* on the futures transaction is not important in itself. The net result to the producer, after taking into consideration the futures side of the operation, is the important factor. The single, most important aspect of hedging is that it enables the producer to obtain a price for his sugar in line with the prices at which he made his hedge sales. There is absolutely *no* essential difference between a sale of raw sugar at any given price and a sale of futures since the return to the producer is the same in either case.

As a concrete example of the foregoing, let us assume that a decision has been made by a producer to sell 200 contracts (10,000 tons) of July No. 4 on a scale-up basis starting at 4.00¢—20 contracts per point advance. Assuming a rising market, the first purchase would have been made at 4.00¢ and the order would have been completed with a final average price on the 200 contracts of 4.045¢.

Subsequently, the producer sells 10,000 tons of raw sugar for June/July shipment at 4.20¢. An order is then placed to cover in the hedges at 4.20¢, or better, on the same day. Covering on this order is completed at a price of 4.19¢.

The mechanics of this transaction would have been as follows:

Sales price of raws:		4.20¢
Price at which hedge sales were made:	4.045¢	
Price at which hedge sales were covered:	4.19	
Loss on futures:	.155¢	
Commission on futures (at member rates):	.013¢	
Deduct gross loss on futures:		.168¢
Net return on raws:		4.032¢

In this illustration it is clearly evident that on a hedge transaction, the return to the producer is quite close to his original hedging price. Whatever small difference may materialize, usually the *net* return received by the seller of actuals runs extremely close to the price at which the hedge sales were originally made. Quite often, too, it is possible to secure a cover of hedge sales at prices which result in the seller securing a net return in excess of his hedge sales. The logical time to undo a hedge is in a declining market, when the Exchange market runs ahead of actuals (discounting lower prices). When this type of program is possible, then the net return would exceed the price at which the hedge sales were made.

A case in point would be the situation which has existed of late. A producer makes a sale of 200 contracts of July No. 4 futures

World Spot Futures and Raw Sugar Prices, January-August, 1957.

at a price of 4.05¢. At this particular time, the best price obtainable for raw sugars for new crop delivery was something closer to 4.00¢. A clear three or four point advantage over the raw market was obtained by making this sale. The raw sugar was sold a short time later at 3.90¢ and an order was placed to cover the futures position at 3.90¢ or better. Due to the decline which took place during this period, the futures were closed out at an average price of 3.89¢. The net result of this operation was as follows:

Sales price of raws:		3.90¢
Price at which hedge sales were made:	4.05¢	
Price at which hedge sales were covered:	3.89¢	
Profit on futures:	.16¢	
Commission on futures (at member rates):	.013¢	
Add net profit on futures:		.147¢
Net return on raws:		4.047¢

This example clearly illustrates how a hedge sale resulted in a return to the producer well in excess of the going market price on the day the sugar was sold, and a better price than could have been obtained for raws at the time the hedges were put out.

For the purpose of being factual, the above examples were drawn from actual conditions as they existed during the period in question, and for further purposes of clarification, were drawn on a Cuban f.o.b. basis.

Futures contracts may also be covered by the means of switching forward into a more distant futures position. A transaction of this nature involves the purchase of one position and the simultaneous sale of another at a fixed differential. This is particularly advantageous to the producer if the premium obtainable for the distant position is in excess of the carrying costs which would be incurred by the producer on sugar he has in his warehouses. In practice the process of switching may be continued from one month to the next or from one year to the next, if the producer so desires, but, ordinarily, hedges are covered at the time of a sale of raw sugar thus completing the over-all operation.

The Raw Sugar Replacement Hedge

In addition to the general advantages of the raw sugar sales hedge, great merit lies in the use of the Exchange as a means of establishing a replacement hedge. A trade of this type is most suitable from the standpoint of a raw sugar producer, because it enables him to sell raw sugar for a particular shipment while, at the same time, maintaining his position in the market by replacing with futures. Normally, this operation benefits the producer most when he is obliged to sell at a price which is basically unsatisfactory, but which is made necessary by pressure on his available warehouse space or in order to make his financial position more liquid. Once the futures position has been established on the Exchange, it is liquidated at a time when, in the judgment of the producer, sales of all, or part, of his position should be made. In essence, then, a trade of this nature is a projection of a raw position into futures made when a producer, for one reason or another, sells sugar at a price which, in his best judgment, reflects a discount under the proper market value for his sugar.

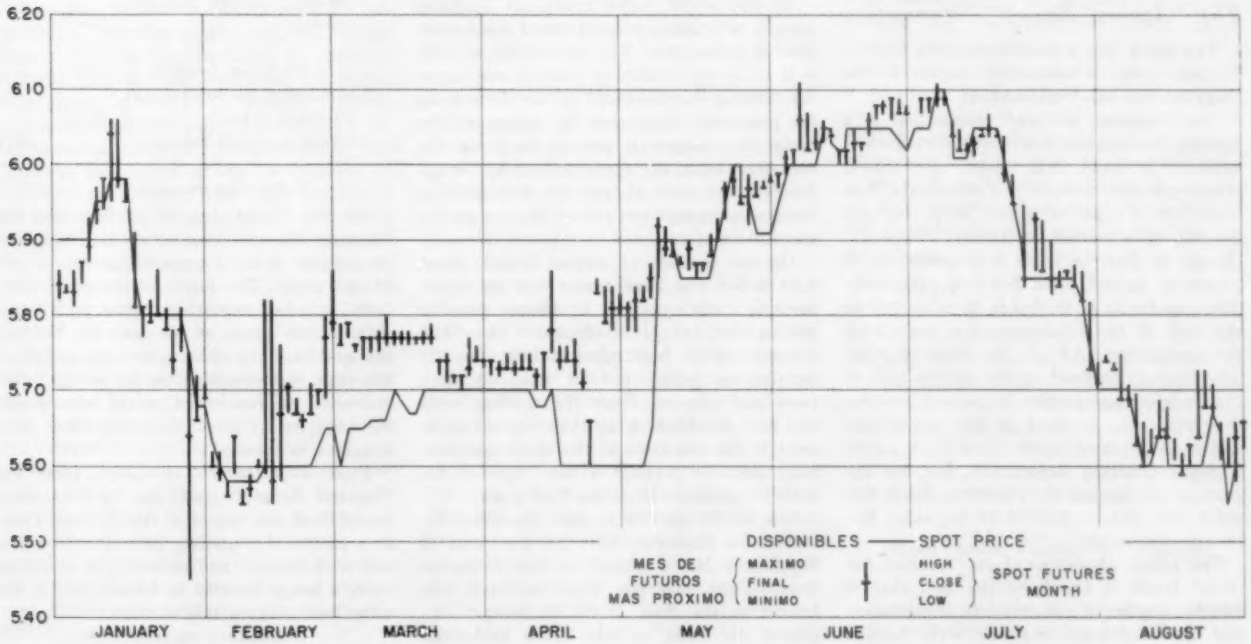
The handling of this type of hedge varies with the circumstances under which the position is taken. Normally, a replacement hedge is made at the time sugar is sold. In other words, futures are purchased simultaneously with the sale of actual sugar. Although the futures contracts are sometimes purchased in the position which is closest to the shipment period covered by the raw sugar contracts, some producers choose to take a replacement in a position beyond the delivery period covered by the raw sugar contract; particularly if the buying can be done on a basis which is at, or close to, even. In other words, if the delayed futures position can be purchased at no premium, or a slight one, it may be used. At times, indeed, a forward position can be purchased at discounts under the spot value as has been the case in the past year. This gives the producer the advantage of additional time in which to work his hedges out, or, perhaps, he feels that a more distant position would eventually give him a more attractive price for his sugar. Principally, however, the replacement hedge is made for the purpose of maintaining the producer's position in the market while still enabling him to move raw sugar.

As an example of a replacement hedge, a producer decides to sell a quantity of actuals at the best price ruling on the day that the decision is made. He then places orders to cover all, or part, of the sale with purchases of futures. By virtue of these transactions, he has taken the steps necessary to move the raw sugar and has, at the same time, replaced his position with futures. His futures position may then be treated in the same way that a position in raw sugars would be treated, i.e., the futures are sold at a price, or prices, in line with the producer's market judgment. After the futures position has been sold, the transaction is closed out. Taking into account the loss or profit on futures sales, the *net* result will be a return to the producer of a price which is close to the average *sales* price of his futures position.

In the same way that the profits and loses are taken into account on regular raw sugar sales hedge, the same is done on the replacement hedge. It is, once more, important to recognize the fact that the *net* result is the most important aspect of this type of hedge. Again, there is absolutely *no* difference between a sale of raw sugar at a given price and a sale of futures.

For the purpose of illustrating the replacement hedge, let us assume that a producer sells 10,000 tons of raws for May/June shipment at a price of 3.90¢ Cuban f.o.b. basis. He then places an order to cover this sale with 200 contracts (10,000 tons) of July No. 4 futures at a price of 3.90¢ or

U. S. Spot Futures and Raw Sugar Prices, January-August, 1957.



better. This order is filled at 3.90¢ on the same day thereby giving the producer an even replacement against his sale. The next step to be taken by the producer is to decide at what level he is willing to price his sugar. At a later date he enters his order to sell his position of 200 contracts at 4.00¢ or better. The market firms and a price of 4.00¢ is obtained for the futures. This closes out the transaction. The liquidating procedure would be as follows:

Sales price of raws:		3.90¢
Purchase price of futures:	3.90¢	
Sales price of futures:	4.00¢	
Profit on futures:	.10¢	
Commission on futures (at member rates)	.013¢	
Add net profit on futures:		.087¢
Net return on raws:		3.987¢

One of the major differences between the replacement hedge and the hedge sale is that, whereas the sales hedge must be liquidated in conjunction with a sale of raw sugar, the replacement hedge is liquidated independently since the raw sugars were sold at the time the hedge was made. This factor simplifies the handling of the replacement hedge since it is treated independently and does not have to be liquidated in conjunction with a raw sugar sale.

In the same way that a sales hedge position may be moved forward by switching from one position to the next, a replacement hedge can be treated the same way. The procedure, in this case, would involve the sale of one position and the simultaneous purchase of another. A move of this type is dictated by the producer's view of the market.

The "Against Actuals" Transaction

The third, and a most interesting type of futures trade, is commonly known as the "Against Actuals" transaction.

The "Against Actuals" transaction is a trading mechanism whereby an equivalent quantity of raws and futures are traded simultaneously between two principals. Basically, this type of trade by-passes the normal, open market functioning of the Exchange in that the trade is previously, and privately, agreed upon between principals. The quantity to be traded is, then, posted on the floor of the Exchange as a trade with the designation "AA" in the place of price. The price to be fixed on the futures side of the trade is agreed upon, in private, between the principals involved in the transaction and is so reported to the New York Coffee & Sugar Clearing Association, Inc. for the purpose of clearing the contracts. From this point, the trade is treated as any other Exchange transaction.

The prime advantage of an "Against Actuals" trade is based on the fact that it enables a seller of raw sugar to *immediately and simultaneously* replace with futures without having to go into the open market for cover. The "Against Actuals" trade presupposes that the seller of actuals wants immediate cover for his sale and that the buyer of the raw sugar wants an immediate hedge against his purchase. Such a trade, from a producer's standpoint, has its inception (as in the replacement hedge) in the desire by the producer, or seller of sugar, to move raws during a specific shipment period. It differs from the replacement hedge in that it requires the mutual consent of both buyer and seller of the raws to exchange futures.

The price at which the raw sugar is sold generally determines the price applied to the swap of futures. This is not a hard and fast rule, but the practice in the sugar trade has been to fix the same price on futures that was applied to the raw sugar contract unless the futures are traded in a forward position where values might be different. Such would normally be the case if, let's say, raws were done for June/July shipment and the futures were done against September.

To illustrate this trade more clearly, let us assume that a producer finds it necessary to sell 10,000 tons of raws for June/July shipment, but he does not want to give up his position in the market. He decides that an "Against Actuals" trade involving the purchase of September futures will provide him with, both an opportunity to sell his sugar for a specified shipment period, and at the same time, give him a suitable replacement in futures. When the producer's broker has been advised of his client's desire in this connection, he covers the sugar trade to find a buyer for raws in the June/July position who is willing to enter into an "Against Actuals" transaction.

In the world sugar trade, an operator usually will take a proposition of this nature into consideration. The advantage to him will lie in his ability to control raw sugar for offering purposes and, at the same time, be protected from risk by virtue of the hedge he assumes as part of the trade. On the other hand, the operator may be "long" futures and wish to convert this position into raws through the sale of futures on the transaction.

On the grounds of mutual benefit, then, both seller and buyer enter into an agreement to trade upon the 10,000 ton quantity calling for June/July shipment raws and futures against September with a mutually satisfactory price of 4.00¢ fixed on both raws and futures. Once the trading basis has been established, all that remains to be done is the execution of the raw sugar contract and the posting of the "Against Actuals" futures trade on the Exchange.

One of the parties to the transaction instructs his broker to have 200 contracts of September No. 4 posted on the Exchange floor. When this has been executed, the broker on the floor of the Exchange, who posted the trade, is told which brokerage house, or houses, will "carry" the futures commitments. Both the buying and selling side may be "carried" in the house which originated the trade, or, perhaps, the buyer of the raw sugar may want his hedge carried in a house which he designates. Generally, these transactions are negotiated between two brokerage houses, (each representing a principal), and they each "carry" their respective client's futures position as well as the handling of the raw sugar contract.

From the time the futures positions are established, each party is free to work out the liquidation of his hedge, as he sees fit. Both buyer and seller act independently of one another in the disposal of their hedge positions. In the producer's case, he will sell his contracts in accordance with his best judgment of the market while the buyer of the raw sugar will cover his hedges according to his own needs.

Another use of the "Against Actuals" transaction, from the producer's standpoint, is the conversion of a hedge sale position into a sale of raw sugar. In this particular case, we will assume that a producer has hedged 10,000 tons of raw sugar in the July position at an average price of 4.00¢. Subsequently, the producer sells his 10,000 tons of raw sugar on an "Against Actuals" transaction with both raws and futures priced at 3.90¢. The producer, in acquiring July futures in this trade is covering hedges which have previously been established thereby concluding the raw and futures transaction. The mechanics of the liquidation would, then, be as follows:

Original hedge sales price on futures:	4.00¢	
Sales price of raws:		3.90¢
Purchase price of futures on the "Against Actuals" trade:	3.90¢	
Profit on futures:	.10¢	
Commission on futures (at member rates):	.013¢	
Add net profit on futures:		.087¢
Net return on raws:		3.987¢

From this illustration, it is clear that the "Against Actuals" transaction facilitated the conversion of the futures hedge into a sale of raw sugar. The buyer of the raws, similarly, may be converting a long position in futures into raws, or, he may be hedging the purchase. In either case, the result of this type of transaction, as far as the buyer and seller are concerned, would be governed by whatever position they previously had acquired in futures.

From a producer's viewpoint, then, the "Against Actuals" trade can be considered useful from two principal standpoints. First, as a means of replacing immediately a raw sale with futures, and secondly, as a way to cover a hedge position in futures and at the same time make a sale of raws.

(*Continued on page* 37)

facts about sugar

New York, October 4, 1957:—Refined sugar deliveries have continued to lag behind those of last year, and through September 28th cumulative distribution was 158,000 tons less than that of the corresponding period in 1956. Moreover, B. W. Dyer & Company, Sugar Economists and Brokers, believe that deliveries will fall further behind by the end of the year.

Although the 1957 U. S. quota is considerably in excess of estimated demand of 8,800,000 tons, the apparent surplus is less pronounced in the Northeast than in other areas. Moreover, the Bull Line strike, which started August 19th in Brooklyn, was extended to Puerto Rico, and has curtailed shipments from that area.

Domestic spot (#6) raw sugar prices on the N. Y. Coffee and Sugar Exchange advanced from $5.60 per 100 pounds at the beginning of September and were $5.70 at the end of the month. However, on October 2nd they again declined to $5.60. Refined sugar prices were generally unchanged since the decline on September 3rd.

World sugar prices (#4) were 4.40¢ per pound at the beginning of September, and then advanced to 4.75¢ on September 9th. Following that, they declined and reached 4.20¢ on September 24th. Later in the month, they advanced to 4.68¢, but then declined and were 4.40¢ on October 3rd.

President Batista on September 12th approved a recommendation of the Cuban Sugar Stabilization Institute to transfer 200,000 Spanish long tons from the World Free quota to the U. S. Retained quota, and assigned 30,000 tons to cover the U. S. liquid quota. Later, it was reported that the Institute had recommended a transfer of an additional 100,000 tons from the World Free to the U. S. Retained quota.

Cuban sales to the world market (outside U. S.) through September 30th totalled 2,848,673 short tons, according to a survey by Willett & Gray Inc., compared with 2,661,409 short tons to the same date last year.

Cuban sugar exports to the U. S. through September 15th were reported at 2,465,958 short tons, compared with 2,536,186 short tons to that date last year. Exports to other countries were 2,485,411 short tons, against 2,193,385 short tons to September 15, 1956.

According to a study of trends made by the Sugar Division of the U. S. Dept. of Agriculture, world sugar consumption during the year ended mid-1957 amounted to 45,789,000 short tons raw value, and production during that period amounted to 45,229,000 short tons.

F. O. Licht's first estimate of 1957/58 sugar production in Western Europe is 8,116,000 short tons raw value, compared with 7,529,000 short tons last season. Eastern Europe is placed at 8,942,000 short tons versus 8,206,000 tons last season. Europe including Russia is estimated at 17,058,000 short tons against 15,785,000 tons in 1956/57. Europe excluding Russia is 11,436,000 short tons compared with 10,518,000 tons last season. Russian production is estimated at 5,662,000 short tons against 5,267,000 tons last season. In addition, to Russia, the largest gains were reported in West Germany and France. Declines are expected in Italy, Spain, and the United Kingdom, B. W. Dyer & Company concludes.

SUGAR PRICES OCTOBER 3, 1957

Ex Duty Raw Sugar New York	**5.60**
Average No. 6 Raw Sugar January 2-October 3	**5.77**
Refined Sugar Gross, New York	**9.15**
No. 4 Raw Sugar (f.o.b.) Cuba	**4.40**
Average No. 4 Sugar January 2-October 3	**5.57**

Future Prices	*Contract #6*	*Contract #4*
October, 1957	...	**4.47**
November, 1957	**5.62**	...
January, 1958	...	**3.99**
March, 1958	**5.40**	**3.77**
May, 1958	**5.44**	**3.75**
July, 1958	**5.55**	**3.75**
September, 1958	**5.59**	**3.75**
October, 1958	...	**3.74**
November, 1958	**5.59**	...
March, 1959	...	**3.45**

Louisiana Harvest Begins

The month of September was much too wet for the Louisiana sugarcane crop. Rain came down in large quantities with exasperating regularity during the latter part of the month and the job of planting next year's crop was brought to a standstill all over the sugar belt. The one redeeming feature of the continued rainy spell was that it supplied moisture to the heretofore parched fields in the Youngsville area and this should improve tonnage production in that section.

By the time this letter appears in print the Louisiana grinding campaign will have been under way for about a month. The first mills are scheduled to start during the week of October 6th. In a news released dated September 23rd, Gilbert Durbin, General Manager of the American Sugar Cane League, said that the crop would total about six million tons of cane and pointed out that it all must be harvested and ground within sixty or seventy days. "Bad weather," said Mr. Durbin, "can terrifically complicate that gigantic job. Too much rain can make it hard to get the cane out of the fields. Hard freezes can lower the quality of the cane and make processing slow and difficult." This is, of course, the yearly gamble taken by the Louisiana Sugar Industry. This year, however, the cane growers and processors have something new to worry about. It is Asian Flu. This extremely contagious disease could spread rapidly among personnel of a sugar mill and stop grinding operations and could also incapacitate cane harvesting crews. Sugar factory operators have not yet been able to get Asian Flu vaccine for their employees although concerted efforts have been made by the American Sugar Cane League to secure a supply for the industry.

The 1957 Crop Louisiana Sugarcane Price Determination has finally been issued by the Sugar Division.

The determination differs from the 1956 crop determination in that the raw sugar pricing period used in computing the price processors pay producers for sugarcane extends from October 11, 1957 through February 27, 1958, a period of twenty weeks. Last season the raw sugar pricing period lasted for 29 weeks and ran through April. The industry asked for the shorter period.

According to the official news release concerning the determination other major changes are that the price for sugarcane is applicable to sugarcane delivered either to a field hoist or directly to the mill, and the cost of hoisting and weighing sugarcane at field hoists and the costs of transporting sugarcane from the field hoist or the farm to the mill are to be paid by the processor, or the processor shall make allowance to the producer for such services based on net sugarcane.

The Louisiana Sugar Industry lost one of its most distinguished members on September 19, 1957, when Stephen C. Munson, of Jeanerette, La., a Charter Member and Honorary Life Member of the American Sugar Cane League, its third President, and Chairman of the world renounced Contact Committee, died after a short illness at his summer home in Pass Christian, Miss.

Beet Area Visited by Cuban Executives

Executives of the Cuban sugar industry will visit Colorado sugar beet fields and

factories October 7 through 10, according to Robert H. Shields of Washington, D. C., President of the United States Beet Sugar Association through which the invitation to the Cuban leaders was extended.

Mr. Shields said today:

"We hope that this forthcoming tour by outstanding leaders of the Cuban sugar industry will in some measure reciprocate the courtesies extended to us in 1950 when the heads of several of our domestic beet sugar companies went to Cuba to study the operations of the Cuban sugar industry."

The Cuban executives, some of whom will be accompanied by their wives, will include:

Amadeo Lopez Castro, President of the National Development Commission and principal advisor to the Cuban government on sugar affairs.

Dr. Arturo Manas, President of the Cuban Sugar Stabilization Institute and Secretary of the National Association of Sugar Mill Owners.

Dr. Jorge Barroso, member of the Cuban Sugar Stabilization Institute representing the sugar mill owners.

Dr. Gaston Godoy, member of the Cuban Sugar Stabilization Institute representing the mill owners.

Pastor Torres, member of the Sugar Stabilization Institute representing the cane growers.

Laurence Crosby, member of the Sugar Stabilization Institute representing the American sugar mill owners in Cuba.

Dr. Joaquin E. Meyer, Washington representative of the Sugar Stabilization Institute and financial counselor of the Embassy of Cuba.

Four of the party hold positions in the Cuban government. Messrs. Lopez Castro, Barroso and Torres are Ministers without Portfolio and Mr. Godoy is Speaker of the House of Representatives. Mr. Shields said, however, they are coming to Colorado in non-official capacity and only as representatives of the Cuban sugar industry.

On behalf of the 16 member companies of the U. S. Beet Sugar Association, with factories in 22 states, entertainment of the Cuban visitors will be arranged by three companies with headquarters in Colorado: The Great Western Sugar Company, Holly Sugar Corporation and American Crystal Sugar Company.

Beet harvest in northern Colorado will start Monday and the first day of factory operation is expected to be Wednesday when the Cuban visitors tour the area. The itinerary includes Brighton, Greeley, Eaton, Loveland and Johnstown. They will visit a typical sugar beet farm and some of the large livestock-feeding operations utilizing sugar beet by-products.

The tentative program contemplates a reception and dinner at the Denver Club Monday evening, luncheon and dinner in Colorado Springs Tuesday, a tour of northern Colorado beet areas Wednesday with luncheon at the Greeley Country Club and dinner at the Brown Palace Hotel.

Brazilian Sugar Production

Total 1955	2,286,261 tons
Total 1956	2,495,567 tons
Jan. 1 to June 30, 1956 ..	633,310 tons
Jan. 1 to June 30, 1957 ..	745,566 tons

Brazil's 1956-57 season opened under disadvantages. Reduced production in the South, due to climatic vagaries late in 1955-56, combined with heavy exports and increased domestic consumption, caused shortages on the home market. The situation was aggravated early in the new season by a strike of Campos cane planters, which paralyzed the mills and threatened to spread to Sao Paulo and the North. Work was only resumed towards the end of August.

Despite this unfavorable start production in 1956-57 increased by 6.4%, to an all-time high of 2,473,229 short tons, South Brazil contributing 54% of the total. According to advance figures announced by the Institute all States, except Minas Gerais, recorded appreciable increases over the 1955-56 outturn.

Domestic consumption increased by 5%, to 2,101,000 tons, equivalent to 73.48 lbs. per head of the population, as against the 1949 rate of 57.2 lbs. Consumption *per capita* varies considerably in Brazil, ranging from 53 lbs. in the North to 120 in the Federal district and Sao Paulo.

Preliminary forecasts for the 1957-58 season, based on official production quotas, place the probable yield of usina sugar at 2,818,200 short tons and domestic consumption at 2,376,000. Adding the carry-over of 283,800 tons at June 1, 1957, the surplus should reach 726,000 tons, leaving a record margin for exportation.

Brazilian sugar, which has hitherto been considered primarily as a foodstuff for domestic consumption, is about to be added to the list of export products, such as coffee, cotton and cocoa. Production is expanding rapidly under the stimulus of renumerative prices and official protection and bids fair to leave an annual, instead of an occasional, surplus for foreign markets. As it is still impossible to export at internal prices the difference between these and world parities will continue to be covered by the Price Compensation Fund. So far the Institute has never been able to sell abroad at a profit.

Grinding Chopped Cane In Hawaii

Favorable results are reported for the first test run of chopped cane in a series of standard mill rollers at the Puunene Mill on Maui. The test was an outgrowth of pumping cane experiment conducted by the Hawaiian Commercial and Sugar Co.

An ensilage cutter, ordinarily used to chop up cane to determine its sugar content, chopped the cane into bits less than an inch long. Although the mill rollers were designed to handle longer strips of shredded cane, they accepted and ground the smaller bits of chopped cane. As the cane was fed into the carrier, it was sprayed with a lime solution to prevent juice deterioration and also to see if the lime solution would cause slippage in the mill rollers.

Procedure for the test was to simulate as nearly as possible the cane cutting of an HC&S experimental harvester rig.

A U. S. patent has been granted on a process for separation of the pith and fiber components of bagasse. It was developed by scientists of the Hawaiian Sugar Planters' Association Experiment Station. The process is used in the manufacture of paper from bagasse.

Application for the patent was filed four years ago by Dr. J. H. Payne, the HSPA Experiment Station's principal technologist; William Kenda, then HSPA associate technologist and now C. Brewer & Co. vice president; and Henry I. Mahon, then HSPA assistant technologist and now chemical engineer with Dow Chemical Co. in Pittsburg, Calif. The patent has been assigned to the Hawaiian Development Co., a corporation which handles patents developed in the Hawaiian sugar industry. Rietz Engineering Co., at Santa Rosa, Calif., is licensed under this patent to sell a machine which will use this process.

In this process, the bagasse is cooked and subjected to disintegration and screening under the action of sprays of water so that fiber is obtained relatively free from pith and foreign matter. This fiber is in such condition that it can be used for the production of various types of high grade paper.

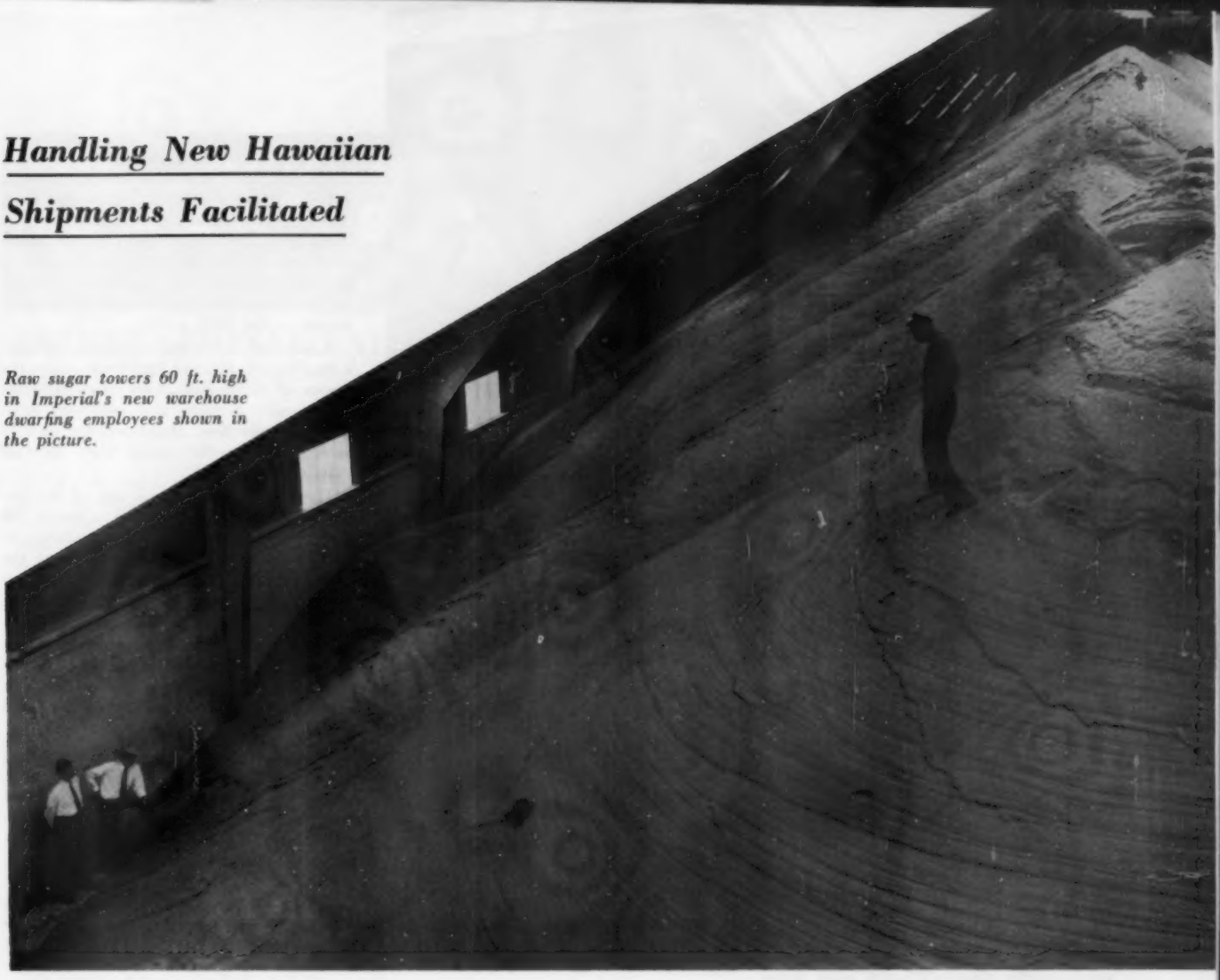
Key personnel from sugar plantations on Oahu, Maui and Hawaii were guests of Theo. H. Davies & Co., Ltd. at a demonstration of a specially-designed cane loader at McBryde Sugar Co., Ltd. on Kauai earlier this week. The group, which also comprised various agency officials, was flown to Kauai in two plane loads, one on Tuesday and one on Wednesday. Star attraction of the aerial excursion was the new Bucyrus-Erie model 30-B special cane loader, which is being introduced into the islands by Theo. H. Davies & Co.

The new cane loader has several features which Bucyrus-Erie claims will make it popular with Hawaii's sugar plantations. It was two years in development and is designed especially for Hawaiian terrain.

High mobility and ease of traveling are one of its outstanding features. It has a relatively high ground clearance which enables it to operate successfully on hilly and stony ground. Operator ease is greatly increased with the introduction of air, or pneumatic, controls. This replaces the familiar mechanical controls which take more physical effort on the part of the crane operator.

In order to bring operating costs down, the cane loader was designed as a heavy-duty machine throughout. Bucyrus-Erie believes it will perform longer in the field without serious breakdown than any cane loader now in operation.

Handling New Hawaiian Shipments Facilitated



Raw sugar towers 60 ft. high in Imperial's new warehouse dwarfing employees shown in the picture.

Imperial Completes Bulk Raw Sugar Installation

New facilities for handling bulk raw sugar, recently installed by the Imperial Sugar Company of Sugar Land, Texas, are attracting wide attention in the sugar industry.

A raw sugar warehouse bigger than a football field, and a completely mechanical system for unloading cargoes of thousands of tons of loose, bulk raw sugar at Galveston, Texas, are among facilities Imperial has placed in service in recent weeks.

The Texas refinery's new methods of handling raw sugar are in line with an industry-wide trend toward greater mechanization, according to W. H. Louviere, president of Imperial. The sugar industry is turning toward mechanization to offset constantly increasing costs and to meet growing sugar needs of the world's expanding population with speed and efficiency, Mr. Louviere said.

Imperial began the changeover in its methods of handling raw sugar after signing a long-term contract through which the Sugar Land refinery has access to large quantities of Hawaiian raw sugar. Now that its new dockside and warehousing facilities are completed, the Imperial plant has equal access to raw sugar from the cane-growing areas of both the Pacific (the Hawaiian Islands) and the Atlantic (principally Cuba and Puerto Rico). Generally, refineries are restricted to one or the other of these areas for supplies.

The same ocean freighters which formerly brought shipments of raw sugar in bags for Imperial, now arrive at Galveston with hatches filled with loose, bulk raw sugar. A single ship may carry anywhere from 7,500 to 13,000 tons, and one shipload supplies the Imperial refinery with enough raw sugar for 10 to 12 days of around-the-clock operation. From 30 to 35 shipments arrive annually, varying with sugar consumption.

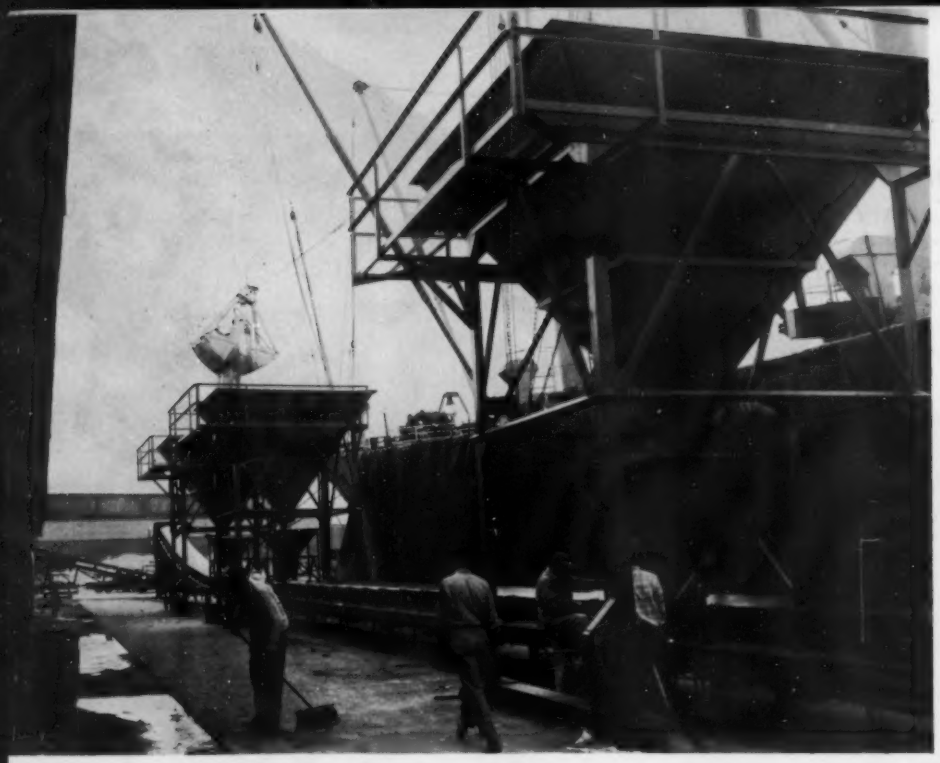
At the Galveston pier, Imperial's new unloading system—a mechanical marvel using automatic conveyors, huge hoppers, and bulldozers to move the sugar—goes into action.

Five tall, funnel-shaped hoppers are now permanent fixtures at the pier. Since most cargo ships have five holds, the hoppers are positioned so that all five hatches may be unloaded at once.

Aboard ship, big clamshell buckets are swung by the ship's tackle and winches into the hatches to scoop up the sugar and lift it out to the hoppers. As the level in each hatch falls, bulldozers and payloaders work inside the holds, shoving the sugar from corners to the center of the hatch where it can be reached by the clamshell.

About 50 tons can be unloaded from each hatch, per hour. It takes five to eight days, on a 16-hour day work schedule, to unload an entire cargo of sugar.

From the hoppers on the pier, sugar flows out onto a 400-foot continuously moving conveyor belt, which runs parallel to the side



On the Galveston docks sugar is unloaded from the bulk ships by clamshell buckets, dropped in hoppers and mechanically conveyed to the box cars shown below.

of the ship. It is then transferred to another series of belts which carry it through the dock warehouse into waiting boxcars.

As the sugar falls from hoppers to conveyor belt, a rotating mechanical arm reaches out to extract two ounces of sugar from the belt every 30 seconds, for sampling. The samples are blended and divided, with representative samples going to seller, buyer and an independent laboratory. The final settlement is made on results agreed upon by all three parties. In early stages, sampling is checked by obtaining manual samples from each hopper at regular intervals.

As the raw sugar enters the boxcar it drops into a "slinger," a whirling machine which hurls the sugar into both ends of the boxcar. When the sugar reaches the top of the car, the "slinger" is removed and placed in another car.

Imperial now has four conveyor-slinger combinations and can load four cars simultaneously. The company plans to add still more equipment so that six cars can be loaded at once.

The loaded boxcars are then linked into trains and sent to Sugar Land.

Sometimes the raw sugar goes directly from boxcars to the refinery for processing. The cars are brought alongside Imperial's wash plant. Small payloaders, driven into the cars, push the sugar out and into an underground hopper, where it is started on its way through the refining process.

When the raw sugar arrives faster than the refinery can use it, Imperial's ultramodern warehouse comes into use. The warehouse, in which Imperial can store in immense, 40 million-pound stockpile of raw sugar, is one of the largest industrial buildings in the southwestern United States. Its floor space measures 27,200 sq. ft., or about three-fourths of an acre. It is 340 ft. long, 80 ft. wide, and 60 ft. high.

Four boxcars of raw sugar can be emptied simultaneously at unloading docks at the huge warehouse. Payloaders shove the sugar out of the cars into a great underground hopper. Then conveyors move the raws gradually upward inside the warehouse. The sugar goes all the way up to the top of the building, where a shuttle conveyor causes it to wall evenly into the warehouse, forming an enormous pile that eventually reaches almost to the 60-ft. ceiling.

Raw sugar leaves the warehouse through a long tunnel, running lengthwise under the center of the building. The raws fall into the tunnel's hoppers and conveyors from the warehouse floor. Bulldozers are used to push sugar into the tunnel when the vast building is cleared.

The Imperial refinery is one of the few in the United States equipped to handle 100 per cent of its raw sugar requirements in bulk form. It has now become one of the most advanced among the world's sugar refineries in the handling of raw sugar.

Imperial is winding up a 10-year building program with the construction of a new four-story melt house, Mr. Louviere has announced. Work on the new unit is under way with completion scheduled for next spring.

When the new melt house is completed, the 114-year-old company will have what amounts to a completely new refinery, as a result of having invested more than $7,000,000 since 1947 in new buildings and modernization and remodeling of other structures.

Imperial launched a $4,000,000 improvement and expansion program in 1947, and then began another $3,000,000 building program in 1954.

Conveyor belt mounted on wheels, comprising part of Imperial Sugar Company's new mechanized facilities for handling cargoes of bulk raw sugar at Galveston, Texas docks. Here sugar unloaded from the ship is conveyed into freight cars for the trip to Sugar Land.

Sugar's Progress in

HUMAN RELATIONS

Roy J. Leffingwell

INTERNATIONAL LABOR ORGANIZATION . . . .

To Improve Plantation Life

A bold move has been launched by the International Labor Organization to improve substandard working and living conditions for millions of plantation workers throughout the world. Thirty nations were represented at a recent Geneva, Switzerland, meeting of the I.L.O.'s "Work on Plantation Committee." Statements by worker representatives from Equatorial Africa and Southeast Asia brought out the fact that substandard working conditions were the rule rather than the exception.

The meeting, which lasted almost all of June, listed the following objectives:

1. Protection for those recruited for work, especially away from home.
2. Determination of wages by collective bargaining shall be encouraged.
3. Annual holidays with pay after period of continuous service.
4. Women should be entitled to maternity leave.
5. Workmen's compensation is urged for workers injured on the job.
6. Workers and employers shall have the right to organize with a minimum interference by government.
7. A system of labor inspection shall be enforced to protect the worker and the employer.
8. Adequate housing shall be provided.
9. Adequate medical facilities shall be provided for workers and their families.

These objectives were recommended by the plantation committee which is composed of government, worker and employer groups in the participating countries. It was adopted by the plenary session of the I.L.O. convention and will come up for final adoption at the 41st session of the I.L.O. next year in Geneva.

The minimums set will draw criticism from some areas of the sugar world. Management will probably say, in all sincerity, that they cannot meet such conditions of employment and continue in business.

Again, the matter is one of productivity. With the amount and quality of work turned out today it would probably not be possible to meet increased costs. However, it has been found in many sugar areas that where conditions are improved the amount and quality of work improves. Hawaii, for example, in September announced that average daily earnings for sugar workers for the first seven months of the year were $11.16, an all-time high. In addition to cash wages there are fringe benefits, such as holidays, vacations, medical care, etc., worth an average of $3.60 per day per employee. Yet, labor costs per ton of sugar are probably lower in Hawaii than in any area of the world.

The United States Bureau of Labor Statistics reports that from 1947 to 1956 unit labor costs rose 28% and output per man hour rose 26%. There is usually a direct correlation between what you pay and what you get in the quality of merchandise. As plantation standards are raised the amount, and quality, of work can also be increased.

Bulk Handling

Australia is now handling sugar in bulk from their new Mackay terminal, which is the world's largest. The Queensland Sugar Board has ruled that savings effected by a mill through the use of bulk handling will go into a pool. (The pool's capital expenditure is in the bulk installation). Further, if it is found that a mill in supplying the terminal incurs additional net costs it should be recouped, said the Sugar Board.

Because it is not possible to assess accurately what the mill cost will be under bulk conditions it is proposed to make a tentative charge of 4 shillings, Australian per ton, (approximately 40¢ U. S.) This charge for handling of bulk sugar will be reviewed at the end of 1957 season when experience will have been obtained as to actual costs.

Higher Wages

Hawaii's 15,000 sugar workers are going after a big pay increase when their current two year wage contract expires February 1, 1958.

Jack W. Hall, regional director of the International Longshore and Warehousemen's Union, which represents about 90% of all sugar workers in the Islands, calls present wages substandard. (Hawaiian plantations say the cash daily earnings per employee averaged $11.16 for first seven months in 1957.)

The union's official publication, "The Dispatcher" recently carried an article by an ILWU vice president. He predicted mechanization and automation may mean that union workers will be earning as much as $5, maybe even $10, an hour "in the near future."

The union has not given the Hawaiian sugar industry any definite demands as yet, however the regional director says that skilled workers in the sugar industry are getting 60 to 80 cents an hour less than skilled people in the construction industry.

Union Membership

Nearly three out of every four adults in the United States, who are not union members, (73%) believe each person has the right to join or stay out of any private organization—such as a labor union. This was the finding of a nation-wide public opinion poll by Dr. George Gallup, director of the American Institute of Public Opinion.

Union members, on the other hand, (74%) believe that when all workers enjoy the gains won by the labor union they should have to join and share the cost of union representation expenses.

Six-three per cent of the general U. S. public say they would vote for a law giving workers the right to work without joining a union. A number of individual states have passed such laws. No national legislation has been put to a test.

A recent survey in the U. S. shows that every year new and better tools increase the productivity of the nation about 3% per hour of work. Estimates are that by 1960 productivity will be up 16% over the 1954 level.

West Germany

West Germany has used a wide range of incentives to increase productivity. Some of these have been:

1. Whoever made money was allowed to keep most of it under a system which forgave taxes to those who saved and invested.
2. Relatively painless customs and sales taxes were increased. By 1950-51, indirect taxes accounted for 50% of German tax revenue.
3. Accelerated depreciation on capital expenditures for new plant and buildings. Ploughing back of profits encouraged.
4. Export industries received tax rebates.
5. Tight conservative financial policies.

British Guiana

British Guiana, which is perched on the northeastern shoulder of South America, has an area of about 83,000 square miles. However, the bulk of its half-million population live in the coastal area and work on sugar plantations.

SUGAR ABSTRACTS

Published under the Auspices of the International Society of Sugar Cane Technologists by Special Arrangement with SUGAR y AZÚCAR — Dr. O. W. Willcox, Editor

Agriculture

Influence of "Earthing-Up" and Tillering of N:Co. 310

H. C. FU, *Report Taiwan Sugar Experiment Station*, pp. 47-72 (1956), English summary.

In many sugar cane areas it is standard practice to fill in loose soil between the early tillers of the young plants to some distance above the seed piece. With the advent of the new variety N:Co. 310 which excells in tillering capacity, the suggestion was made that it might be desirable to intensify the earthing-up and thus suppress the development of futile tillers; an alternative suggestion was that earthing-up should be abandoned so as to get more millable stalks. To settle the proposition, replicated field tests were made and month-to-month changes in tiller population were compared.

Regardless of whether the cane rows were earthed-up or not, the number of tillers produced was not influenced, but in all cases a higher percentage of tillers survived among the earthed-up plants to make millable stalks at harvest time, and consequently the earthing-up practice resulted in the largest yield.

■

Pre-harvest Spraying with 2,4-D to Increase Sugar Content of Cane

A. S. CHAKRAVARTI AND K. L. KHANNA, *Indian Journal of Sugar Cane Research*, Vol. 1, April-June, pp. 146-147 (1957).

As previously reported, during the crops of 1954 and 1955, large scale experiments were made by the Indian Central Sugar Cane Research Station in collaboration with the sugar industry in tropical Bihar State, on the effect of spraying sugar cane with a solution of 2,4-D at various times before harvest. The treatment consisted of applying the spray on the standing cane at the rate of 60 gallons of water containing 50 p.p.m. of the hormone per acre. The results were so encouraging that the work was repeated in 1956.

Results of 26 tests are now available and these cover four factory areas, eight varieties of cane, plant and ratoon cane, autumn and spring planting, besides irrigated and unirrigated crop. Further, different trials of spraying are involved, between mid-November and end-February, as also a wide range of intervals between spraying and harvesting, viz. from two days to 107 days. In 24 out of the 26 trials, increases in estimated sugar recovery have been obtained, the range of variation being from 0.20 to 1.01 unit. The average improvement works out to 0.44 units, including the figures of the two tests which do not show positive response. One of these indicates practically no effect while the other points to a decrease of 0.78 unit. Considering the overwhelming number of positive responses, the one negative response recorded would appear to be due to some heterogeneity of crop as between treated and control plots. This is strongly indicated by a considerably higher brix of crusher juice desired for the latter.

The entire data pertaining to the 26 trials have been statistically analysed with respect to the effects on estimated recovery and sugar per cent cane, as also on other important criteria like fibre content of cane and purities of crusher (or primary) juice and mixed juice. Increases in estimated recovery, sugar per cent cane and purity of mixed juice are significant at one per cent level; respective values for increase being 0.44, 0.43 and 1.80 unit. Similarly, there is a rise in purity of crusher (or primary juice) juice by 1.44 unit which is significant at five per cent level. Fibre content shows a small decrease which is statistically non-significant.

The effect is perceived as early as two days after spraying and remains unabated even after 107 days—a period more or less covering a normal crushing season. Spraying may be done with equally good results at any time between mid-November and end-February. All the features enable easy adoption of the method by the industry.

■

Investigation on the Stunting Disease of N:Co. 310

H. T. CHU AND H. P. LIN, *Report Taiwan Sugar Experiment Station*, No. 14, pp. 83-92 (1956).

N:Co 310, now the principal variety of sugar cane in Formosa, is highly susceptible to the stunting disease, and the degree of infection is increasing with the passage of time.

However, it was again proved that the stunting disease can be effectievly controlled by submerging the seed pieces for two hours in water heated to 50° C. In these experiments it was found that from 40.8% to 84.8% of the stalks planted without hot water treatment were infected, whereas only 3.6% of stalks from treated seed were affected by the disease. Experiments made in 1955-56 also showed that cane yield from treated seed pieces was not only 33.8% higher than from untreated diseased seed pieces, but also 19.59% higher than from healthy untreated seed; it would thus appear that soaking the pieces in hot water of itself has some stimulating effect on germination and growth of the shoots.

What seems to be an important point in the control of stunting disease is that a single hot water treatment of cane used for planting a seed-cane nursery from which seed is taken for commercial planting is not enough. When this nursery stock is again hot-water treated for the next plant crop, the degree of infection is less than in cane from once-treated nursery stock. Evidently, by using hot water treatment continually on the seed pieces from all the nurseries, it should not be impossible to bring the stunting disease under commercial control.

■

Methods of Testing for Mosaic Resistance in Sugar Canes Compared

N. C. KING AND J. DICK, *South African Sugar Journal*, May 1957, pp. 361, 363.

Seedlings of the N. 50 series were subjected to replicated trials by four methods; (1) alternate lines of mosaic-infected canes and new varieties, the whole area being then planted with

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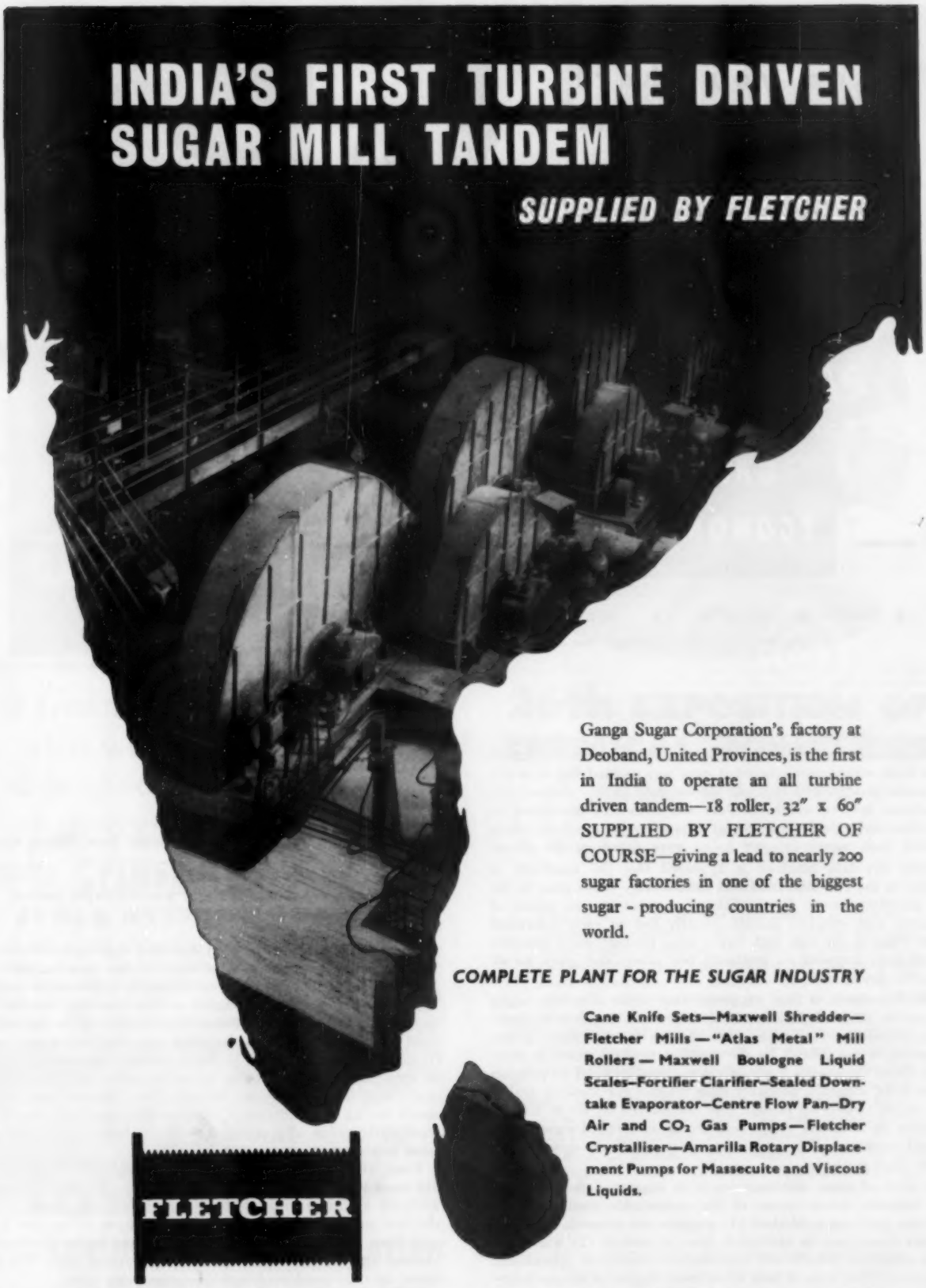

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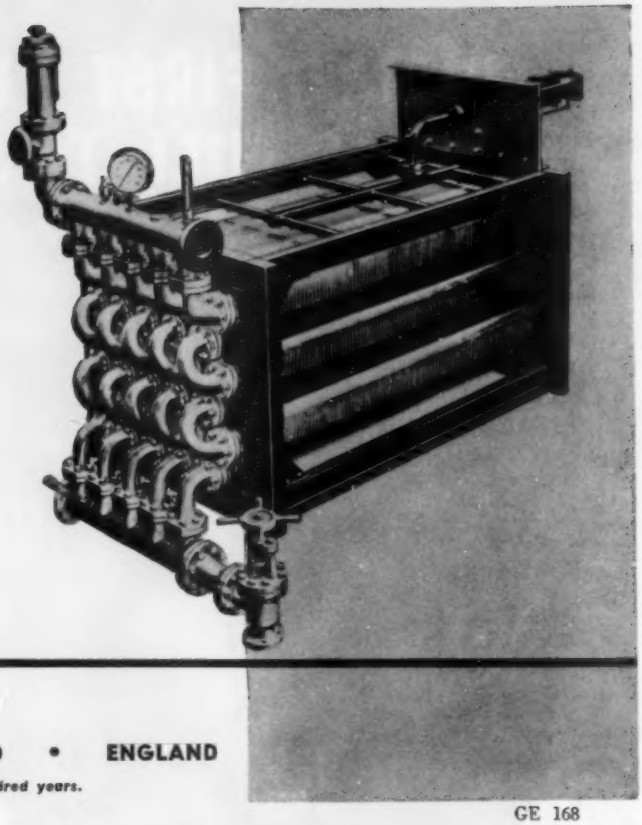

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maize to ensure presence of a supply of aphid vectors; (2) field tests from which mosaic-infected cane was omitted but in which the maize planted with the cane was infected by inoculation; (3) glasshouse tests in which the cane was artificially inoculated by the abrasive method; and (4) glasshouse tests in which aphids derived from mosaic-infected maize were caged on the plants.

From the data obtained it appeared that the incidence of mosaic in the two field tests was considerably lower than in the two glasshouse tests. In the field tests there was no means of ensuring that infective aphids actually fed on each individual plant, while in the cage tests fairly large populations of infective aphids were imposed on relatively few plants and given no alternative food plant.

The hypothesis is thus suggested that while a variety might be capable of devoloping mosaic it might not, under field conditions, become infected on account of some factor making it less attractive, or too difficult for the mouthparts of the insect to penetrate. From the results it would appear that artificial inoculation in the field, although probably most reliable for showing ability of a variety to develop mosaic, may confuse the matter by forcing infection on a variety that would not develop the disease under natural conditions. The same uncertainty applies in some degree to the cage methods.

In view of these uncertainties it is suggested that the two field methods, which appear to give comparable results, deserve a certain preference. Method (1) requires use of much land, and for this reason may be omitted in favor of method (2) which has given consistent results and approximates closely to agricultural experience; but since it may allow some degree of susceptibility to pass unnoticed, too much reliance should not be placed on a single trial.

Factory Technology

Use of Pilot Plant Data to Evaluate New Sugar Canes in Louisiana

W. F. GILBEAU, E. E. COLL, and L. F. MARTIN, *Sugar Journal*, Vol. 20, No. 1, pp. 25-27, 39 (1957).

Operation of the pilot-plant at Audubon Factory for evaluating the processing qualities of cane varieties has now included six seasons. The purpose of these operations is to determine relative values of new varieties produced at cane-breeding stations for distribution to the farmers. Before distribution can be authorized, their suitability for efficient grinding and clarification now must be demonstrated by a test in the pilot-plant to assure a supply of cane that can be handled more efficiently on a commercial scale, with higher recoveries of sugar. It is deemed that experiments during four years on canes from the same field should determine the range of processing results to be expected from seasonal variations.

Four varieties: C.P. 44-101, C.P. 47-193, C.P. 48-103 and N.Co. 310 have now been tested during five seasons. The characteristics accepted as indicative of relative desirability are: purity of the clarified juice, the purity rise after defecation of the raw juice with lime, the quantity of wet mud separated in the clarification process, and the Luximetric color of the clarified juice. The pertinent data are condensed in the accompanying table.

Taking the measured characteristics of these four varieties into consideration, it is shown that on the whole the variety C.P. 48-103

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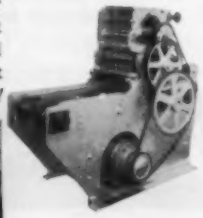

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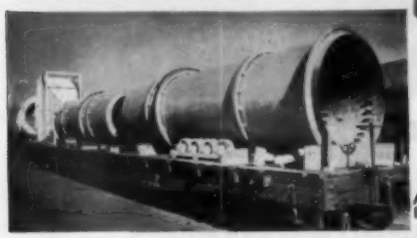

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Table I. Process results of variety comparisons.

Variety	*Purity*	*Purity rise*	*Lbs. mud per ton-cane*	*Clarity (Luximeter)*
		Stubble Cane		
C.P.48-103	82.5	1.1	183	29
C.P.47-193	76.2	1.6	190	36
N.Co.310	75.0	1.2	144	27
C.P.44-101	74.1	1.7	202	37
		Plant Cane		
C.P.48-103	82.0	1.7	183	30
N.Co.310	80.0	0.8	168	43
C.P.47-193	76.8	1.8	200	35
C.P.44-101	75.2	1.4	180	40

■

Experience with the Pol Ratio Method

WILLIAM S. K. BRANDT, Report Hawaiian Sugar Technologists, 1956, pp. 97-98.

The Pol Ratio method recently developed for analyzing cane is now being widely used by the sugar cane industry in interpreting field experiments. It provides a more accurate measure for determining the quality of cane than was possible by the Quality Ratio method. The Pol Ratio method of analysis gives a direct determination of Pol and Fiber % cane. With this method it is possible to distinguish between cane varieties and even the same cane from different experimental treatments which may vary in % of juice. On the other hand, Quality Ratio figures are based only on juice alone and certain assumptions; consequently, yield figures from field experiments may be subject to error since they do not take account of ratio of Juice to Fiber.

In comparing varieties or treatments, the tons cane/acre figure is multiplied by the Pol % cane figure to give the tons Pol/acre figure which is a measure of sugar per acre in the field. However, in fertilizer or irrigation experiments a high tons Pol/acre may not necessarily mean the best treatment because the cost of applying the additional round of fertilizer or irrigation may offset the gain in tons Pol/acre. This is also true with different varieties, as a heavy-tonnage cane may have a low Pol % Cane and therefore produce identical tons Pol/acre against a variety with much less cane tonnage. In the first case the cost of harvesting, hauling and milling will be much greater for the same return of sugar.

An example illustrates the effect of high fiber: the variety 48-2094 was once considered a good juice cane according to the Quality Ratio method; it was since found to have higher fiber and was discarded as a commercial cane. An example illustrating poor juice quality is 49-3856, which in a field test gave a low Pol % cane and a loss in tons Pol/acre against the check plots; a decision on adopting or discarding this variety must await further tests. In another case a field test showed that 38-2915 is not as good in juice quality as 37-1933 but it gives more tons Pol/acre because of higher cane tonnage and lower % of fiber.

■

A New System of Two Massecuites (Granulation of Molasses by the Gillett Method)

GUILLERMO ALEMAN HIDALGO, *Memoria Asociación Técnicos Azucareros Cuba* (1956).

In a two-massecuite system proposed by Gerardo Fundora Fernandez (Central Santo Domingo) the syrup from the first strike is reconcentrated to supersaturations between 1.25 and 1.50 (depending on purity) and seeded with finely powdered pure sugar according to the Gillett method in the proportion of one pound of the power of 1,000 cubic feet of cuite. After the powder has been well mixed, perferably by a mechanical stirrer, the liquor from the first strike is fed in until the pan is full and the cuite is discharged to the crystallizers as usual.

A comparison of results obtained with this two-massecuite system and by the three-mascuite system (developed by Webre) involved the data in Table I.

Table I

	Graining on *Meladura*	Graining on *Molasses*
Purity mixed juice	80.90	81.70
Non-sugar % cane	3.266	3.235
Yield 96 sugar	12.819	13.65
Pol in molasses % cane	1.348	1.867
Molasses, gals. (88 Brix) % cane	9.02	7.98
Apparent purity (final molasses)	34.93	34.81

From these data it is deduced that graining of the molasses by the Gillett method results in a 21.53% increase in the capacity of the vacuum pans, based on the same purity of final molasses. This increase is ascribed in part to the greater velocity of crystal growth on the clean surfaces of the finely fragmented splinters of pure sugar. A further advantage is that recirculation of impurities is reduced to a minimum. There is less reheating of once-processed sugar, hence the low grade sugar is of better quality and considerable heat is saved.

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Hedging

(*Continued from page 26*)

Specialized Hedging

Having discussed in some detail the three fundamental methods of trading in the sugar futures market, it is necessary to state that there are several refinements in the hedging technique which the limitations of space do not permit us to go into. Some of the operations involved are complex and are designed to meet specific hedging needs. Any well versed sugar broker is equipped to make the necessary recommendations to those who have a marketing problem in which futures can play a part. It would be well worthwhile for every producer (particularly those who are not accustomed to using the Exchange) to study the ways in which the use of sugar futures would benefit their selling programs.

Increasingly Broadened Use of the Exchange

Our experience has been that a very broad segment of the sugar community, including the most important world and domestic interests, have found the sugar futures market to be an extremely valuable aid in accomplishing a well managed sales or purchase program. The continuing and expanding interest in sugar futures has succeeded in establishing the Exchange market as an increasingly important place of business where buyers and sellers of sugar can contract with each other for their mutual benefit.

■

Testimonial Luncheon For E. W. Harris

The Zerban Sugarmen's Association tendered a testimonial luncheon to E. W. Harris, Executive Secretary of the Sugar Industry Technicians, at the Chemists Club in New York on October 9th. The occasion was based on Mr. Harris' retirement from the Darco Division of the Atlas Powder Company (SUGAR Y AZUCAR, Sept. 1957, pg. 38).

Dr. H. J. Fornwalt of Atlas addressed the group on "The Sugar Industry, Darco, and E. W. Harris."

■

Berdeshevsky Leaves Southwestern Molasses

P. G. Berdeshevsky has resigned as vice president and director of Southwestern Sugar & Molasses Company and has sold his interest in that company to devote his full attention to Sucro-Blanc, Inc. with which he has been associated for many years. Mr. Berdeshevsky will continue his interest in other phases of the sugar industry with which he is closely connected.

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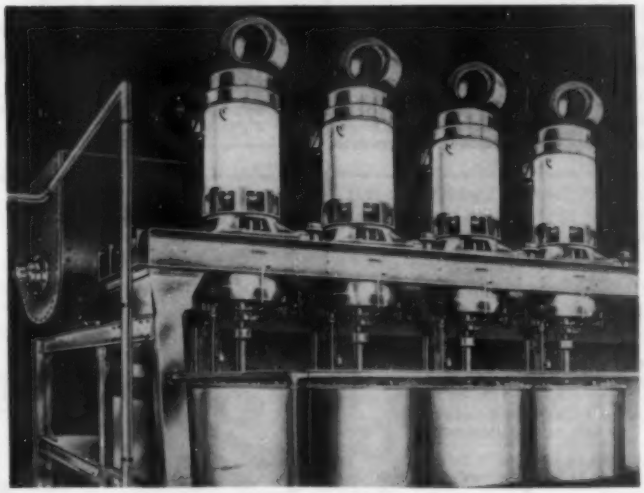

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60 E. 42d St., New York 17, N. Y.

FOR SALE
Vallez Filter—Type C-49-1, 738 sq. feet with 41 Stainless covered leaves. Used only 6 months. Also Hersey Dryers, Vacuum Pans, Evaporators, Centrifugals, Rotary Dryers, etc.
Send for Listing.
STEIN EQUIPMENT COMPANY
107-8th Street Brooklyn 15, New York

YEAST
Distillers Dried Yeast
Primary Grown Yeast
Alcohol—Molasses—Dry Ice
Continuous Food Processes
Waste Disposal
GUSTAVE T. REICH & ASSOCIATES
4604 Osage Ave. Philadelphia 43, Pa.

FOR SALE
One 14 cell Roberts diffusion battery in good condition, new in 1937. Each cell body is 5/16" plate, 6'-10" inside dia. x 10' high, capacity 5.75 tons per cell. For further details contact D. W. Kolstad, Spreckels Sugar Company, 2 Pine Street, San Francisco, Calif.

SWENSON EVAPORATOR

1—13,000 sq. ft. Quad. Vertical Evaporator; First Effect: 2 Forced Circulation cast iron bodies, 5' and 9' dia., total 2250 sq. ft., 1" cu. tubes 15' long.

Second, Third and Fourth Effect: 10' dia. cast iron bodies having 3600 sq. ft. each, 459—1¾" cu. tubes 18' long; barometric condenser, 2-stage Ejector, 2-turbine driven circulating pumps, piping, staging, etc. Unit built 1944 and used only short time.

Priced for quick sale as a unit or will split into individual effects.

SPECIALIZING IN SINGLE ITEMS
TO COMPLETE PLANTS
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BRILL EQUIPMENT COMPANY
2401 Third Ave., New York 51, N. Y.
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FOR SALE
COMPLETE FACTORY

Situated St. Lucia, B.W.I.

Comprising:

11 Roller Milling Plant 26" x 54" and Complete with Heavy-Duty Cane Knives & Steel Carrier.

Quadruple Effect Evaporator, 5000 Sq. Ft. Heating Surface.

1 Calandria & 2 Coil Pans, Centrifugals, Crystallizers, Pumps of all sizes.

1 Steam & 2 Diesel generators of 45-30 K.W. 220 or 440 Volts.

For details apply:

The Dennery Factory Co., Ltd.,
P. O. Box 190
Castries, St. Lucia, B.W.I.

EQUIPMENT FOR SALE:

1—Fulton Double Crusher with 32" x 69" rolls, 15" x 20" journals complete with housings, pedestals, base plates, gear train, etc., without motor.

2—Walsh & Weidner straight water tube boilers, with 6,115.83 Sq. Ft. heating surface. 150 pounds per sq. in. working pressure, complete with valves, Copes feed water system, horseshoe furnaces for bagasse, 2 Peabody steam atomizing oil burners, forced draft fans for horseshoe furnaces and oil burners, induced draft fan, etc.

1—1,000 KW General Electric Turbo-generator with directly coupled generator and exciter. Turbine: Curtis Type non-condensing No. 37526, 1 stage, 3,600 RPM, inlet pressure 150 pounds per sq. in., exhaust pressure 20 pounds per sq. in. Generator: No. 4219172, Type ATB-2, 1,250 KVA, 3,600 RPM, Form HT, 0.8 PF, 3 phase, 60 cycles, 2,300 volts.

1—Complete railroad system for hauling cane, for 36" gauge track consisting of the following:
- 5 Steam Locomotives, with weights of 70, 48, 45, 20 and 18 tons each
- 133 Gregg cane cars with 12 ton capacity
- 45 Gregg cane cars with 8 ton capacity
- 24 Gregg cane cars with 6 ton capacity
- 5 Tank cars with a capacity of 1300 Gallons
- 13 Miles of 36" gauge railroad track with 40 pound per yard rail, ties, switches, etc.
- 1 Cane car dumper mechanically driven.

For further information and details please address correspondence to:

Ingenio "El Potrero", S. A.,
Potrero, Ver., México
Via F. C. Mexicano

Manati Sugar Company's Annual Report

Consolidated net profit for the fiscal year ended June 30, 1957 for Manati Sugar Company and its wholly-owned subsidiaries, is reported by the Company's President George A. Braga, as $777,786 or $1.75 per share after reserves. This figure reflected the marked improvement in the Cuban sugar situation since it compared with a profit of $275,546 in 1956, $112,359 in 1955 and $29,014 in 1954. The mill started grinding on January 10, 1957 and finished May 15, with a production of 1,007,703 bags of 250 Spanish pounds. This figure compares with 862,216 bags produced in 1956. During 1957 Manati spent on improvements $1,069,285 which is expected to produce substantial operational savings. On September 30 a dividend of 45 cents per share was paid, the first since 1952.

■

Chemical Industries 26th Exposition

The 26th Exposition of Chemical Industries will be the largest ever held with more than 500 exhibitors. Scheduled for December 2 to December 6, 1957, the exhibit will be held in the New York Coliseum. Due to the lack of suitable exhibit space the annual Chemical Exposition has not been held in New York for the past six years. Exhibits will, in many cases, be of interest to sugar manufacturers and the exhibitors will include a large number of firms supplying processing and agricultural chemicals to the cane and beet sugar industry.

■

Barroso Addresses N. Y. Sugar Club

First meeting of the N. Y. Sugar Club for the 1957-58 season was held on Monday, September 23rd, at the Downtown Athletic Club. The speaker was the Honorable Jorge Barroso, Minister Without Portfolio in the Cuban Government and a close adviser to the Cuban President on sugar matters. Dr. Barroso has served as President of the Cuban Sugar Stabilization Institute and has acted as his Government's spokesman at meetings of the International Sugar Council. In his talk, Dr. Barroso reviewed the Cuban situation during the past extraordinary year particularly in its action and reaction with the free world market. In regard to 1958, Dr. Barroso said that it was the aim of the Cuban Government to produce enough sugar to insure ample supplies to the United States and other importing areas but to limit the crop to the best estimate for that figure in order to avoid burdensome surpluses such as existed in 1952. This policy was intended to benefit the sugar workers, the growers and the mill owners and was undertaken with the full support of these three groups.

Trend to Bulk Handling of Sugar Continues to Rise

20 to 30% of INDUSTRIAL SUGAR NOW HANDLED in BULK. 80% POTENTIAL is FORECAST*

Many industrial sugar users are converting from bag to bulk to reduce rising sugar handling costs.

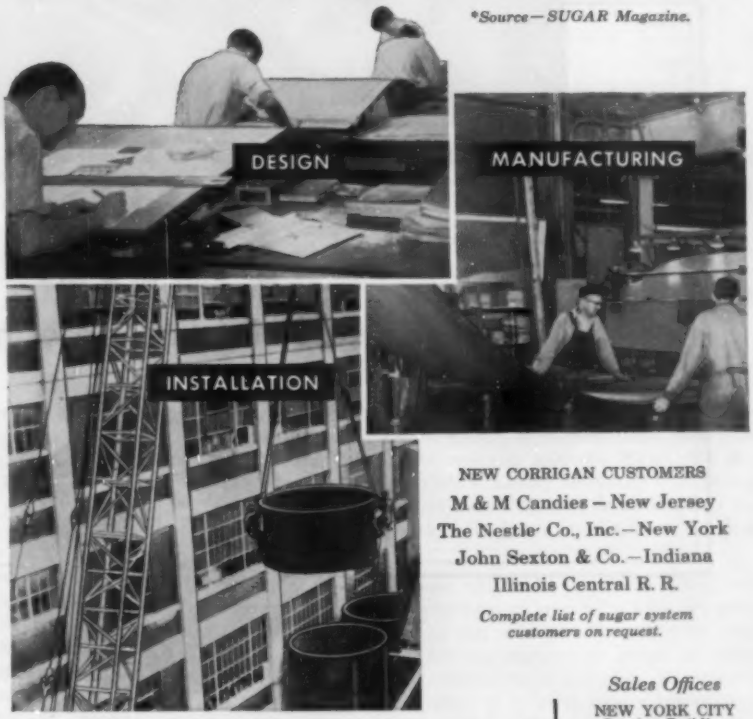
To solve this problem, profit-minded managements are consulting J. C. Corrigan Co., pioneers in the design, manufacture and installation of automatic bulk sugar handling systems. Corrigan systems are now at work in

14 Refineries in United States and other countries.
55 Food processing plants in 15 Industries.
90 Insulated hopper type railroad cars.
2 Sugar hopper cars with push button built-in conveyor.

If *your* company has a sugar handling problem we invite your inquiry. There is no obligation. We will give you facts, figures and a FREE plant survey. Equipment financing plan also available.

J. C. CORRIGAN CO. OFFERS COMPLETE SUGAR HANDLING SERVICE.

**Source—SUGAR Magazine.*



NEW CORRIGAN CUSTOMERS
M & M Candies — New Jersey
The Nestle Co., Inc.—New York
John Sexton & Co.—Indiana
Illinois Central R. R.

Complete list of sugar system customers on request.

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Graybar Building
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HOward 9-4208
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WEst 3-5417
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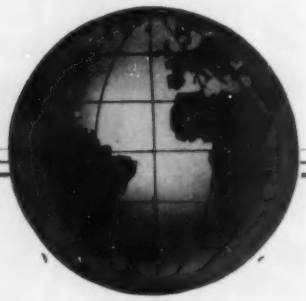
GEneva 8-2141

MOLINOS DE CANA

SMITH

en servicio en todo el mundo



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21 MINCING LANE, LONDRES, E.C. 3

Dirección Cablegráfica: "SUGRENGINE LONDON"

Talleres: 120 TRADESTON STREET, GLASGOW, C.5.

INGENIEROS DE FÁBRICAS Y REFINERÍAS DE AZÚCAR

AZÚCAR

Noviembre 1957

JUSTO EQUILIBRIO . . .

Entre Comprador y Vendedor

CUANDO el pleito iniciado por el Ministerio de Justicia con miras a la suspensión de las negociaciones en azúcares futuros en 1923 al fin llegó al Tribunal Supremo, el Primer Magistrado William Howard Taft, al expresar su opinión, dijo:

> ". . . la utilidad y legalidad de las ventas para entrega futura y de proveer una Lonja donde se puedan realizar negocios dentro de limitaciones y ventas bien definidas han sido plenamente reconocidas por este Tribunal . . . Aquellos que han estudiado el efecto de tales lonjas sobre entregas están generalmente acordes en que a la larga estabilizan los precios en vez de promover su fluctuación."

Leon Israel, Jr., socio desde 1929, y ahora presidente de la New York Coffee and Sugar Exchange, ofrece un breve comentario en esta página sobre las funciones de una lonja de comercio y cómo este mercado puede ayudar al productor, refinador y fuertes consumidores de azúcar.

Hoy día, la mayoría de empresas, industrias o actividades son avaluadas por su llamada justificación económica o por su conveniencia social. Frecuentemente, el mercado de azúcares futuros ha sido sometido a juicio dentro de esta misma prueba rigurosa. Las acusaciones que la New York Coffee and Sugar Exchange (Lonja de Café y Azúcar de Nueva York) fomenta el juego y manipulación de precios en detrimento del consumidor de estos productos figuran entre las principales falacias de aquellos que critican este mercado. Lo cierto es que los críticos del sistema mercantil no están tan bien enterados como debieran estarlo de las funciones que este mercado realiza o desempeña.

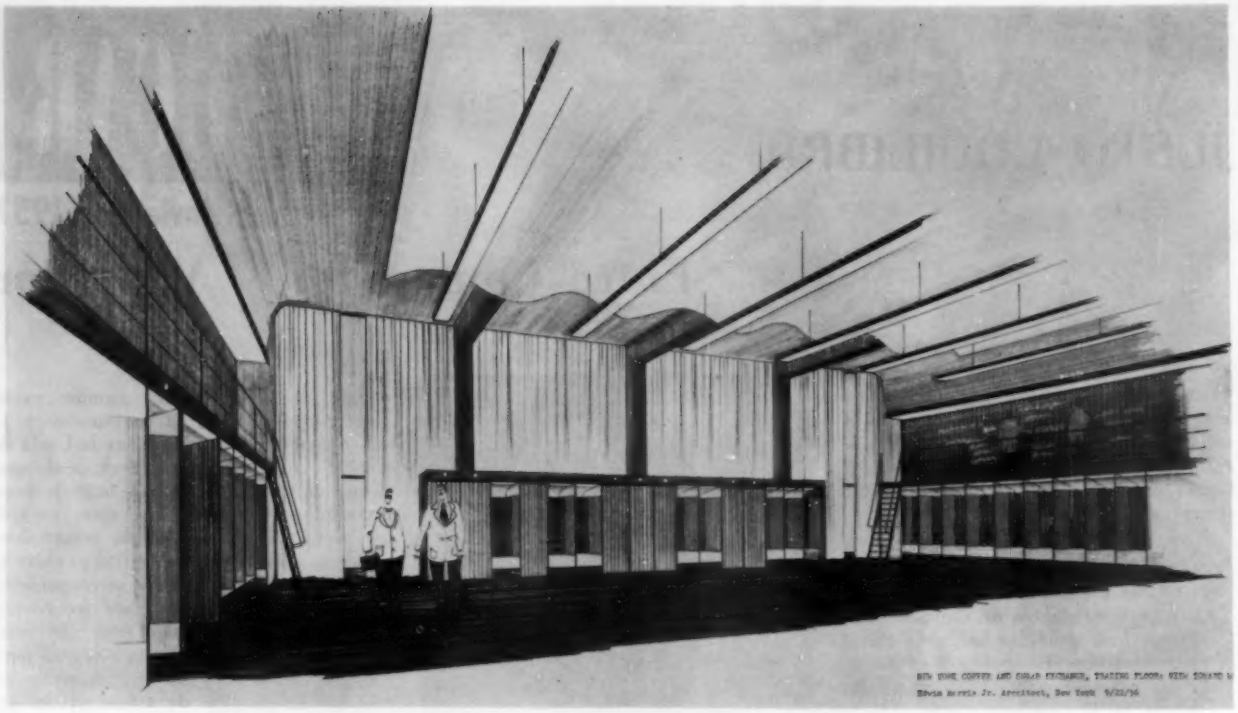
Todos debieran comprender claramente y estar de acuerdo en que en cualquier sociedad organizada debe existir por necesidad un perfecto equilibrio o relación entre la producción y el consumo, o entre el vendedor y el comprador. Pero la producción y el consumo no lo comprenden todo. La distribución también debe ser bien ordenada. Por ejemplo, podrá haber millones de toneladas de azúcar producido en los diversos países abastecedores, y el mercado norteamericano podrá consumir millones de toneladas de azúcar, pero este consumo sería satisfecho mayormente de existencias de azúcar almacenadas. Consideremos que el azúcar que se produce se encuentra varios miles de millas distante del punto de consumo. Si no existiese un medio bien ordenado de traer ese azúcar al mercado para consumo en el año que sigue, el resultado sería caótico. En este país tendríamos un mercado ambriento y bullicioso pujando por aquellas existencias inmediatamente disponibles, y en los países productores de azúcar en ultramar tendríamos los mercados inundados de azúcar. Por consiguiente, es evidente que se necesita algún sistema de compras de azúcares futuros a fin de asegurar un suministro continuo y fijo de azúcar crudo para los refinadores en este país.

Esta es la brecha que siempre existe entre el productor y el consumidor, y es precisamente el vacío que llena la Lonja de Café y Azúcar de Nueva York, indistintamente de la terminología o fórmula poco entendida. Al calcular sus ventas para el año siguiente, el refinador de azúcar debe tomar en cuenta el lapso de tiempo entre la recolección de la cosecha y su preparación para el mercado y disponer sus operaciones de acuerdo. Por lo tanto, tiene que comprar azúcares futuros, o sea comprar para entrega futura a fin de asegurarse de un suministro adecuado de azúcar crudo. De igual modo, el productor de azúcar tiene que contar con alguna seguridad de que podrá vender su producto cuando esté listo para el mercado. Por lo tanto, si puede obtener pedidos en firme para su producto antes de la siembra de la cosecha, podrá proceder con cierta garantía de seguridad económica.

Esta es la función que desempeña la Lonja de Café & Azúcar de Nueva York en el mercado de futuros. El agricultor o productor que tiene el mercado asegurado por pedidos en firme puede obtener dinero en préstamo contra su cosecha futura para sostenerse hasta levantar la cosecha. El refinador, por otra parte, puede asegurar mediante compromisos firmes que contará con un amplio acopio de azúcar crudo para convertirlo en azúcar refino para consumo nacional. Es en esta simple premisa que la Lonja de Café & Azúcar de Nueva York se funda, tal como sucede con la Lonja de Comercio de Chicago, la Lonja de Cereales de Minnesota, y la Lonja de Comercio de Kansas City.

Un principio mal o poco entendido a menudo erróneamente acusado a las lonjas de comercio es que éstas fijan los precios. En realidad, las lonjas no son más que un punto de reunión donde los vendedores y los compradores se ponen en contacto a través de sus agentes respectivos, a distancia. El comprador desea comprar azúcar, digamos el próximo mes de marzo, o abril, o mayo, y el agente del vendedor desea vender. De modo que comienzan a tratar y regatear hasta que se ponen de acuerdo y al fin concluyen la venta. El proceso no puede ser más sencillo. Es tan sencillo como ir a comprar a la tienda de comestibles más cercana. El cliente entra en la tienda y observa los precios de los artículos que le interesan. Si no quiere pagar los precios indicados, se retira, y si le conviene pagarlos, concluye la venta.

LEON ISRAEL, JR.



Esquema artístico de la sala de operaciones en las nuevas oficinas de la Lonja de Café & Azúcar de Nueva York en 79 Pine Street, Nueva York. El nuevo edificio de 12 pisos provisto de sistema de acondicionamiento de aire en el corazón del mercado azucarero de Nueva York fué expresamente diseñado para acomodar la viaja Lonja fundada hace 75 años.

Su Historia y Funciones

Muda de la Lonja de Café & Azúcar de Nueva

La New York Coffee & Sugar Exchange Inc. (Lonja del Café & Azúcar de Nueva York) que está celebrando ahora su 75° aniversario al mudarse a su nuevo edificio de reciente construcción, es esencialmente como todas las demás lonjas de comercio, o sea un edificio público donde se reunen los probables compradores y vendedores, o sus representantes, para sus tratos comerciales.

He aquí cómo surgió la Lonja y cuáles son sus principales funciones:

En realidad, la Lonja nació de la necesidad. En 1880 reinaba el caos en el mercado del café en Nueva York. Las existencias en manos de importadores estaban aumentando y no se podían vender sin sufrir fuertes pérdidas. El mercado mundial se encontraba completamente desmoralizado. Un grupo de jóvenes tratantes en café reconoció la necesidad de buscar nuevos métodos de negociar, de reestablecer orden en el mercado y de desvanecer con la confianza el recelo o desconfianza reinantes en el mercado.

Al cabo de una serie de reuniones constitutivas, se incorporó la New York Coffee Exchange (Lonja del Café de Nueva York) el 7 de diciembre de 1881, y abrió sus puertas al comercio por primera vez el 7 de marzo de 1882.

Durante la Primera Guerra Mundial, las lonjas de azúcar futuro en Londres y Hamburgo (entonces los centros mundiales para los tratos en azúcar) de que dependía el mundo azucarero, se vieron obligadas a cerrar sus puertas, dejando al comercio mundial del azúcar sin medios de proseguir sus actividades. Reconociendo la necesidad de un medio estabilizador, la Lonja del Café amplió sus actividades para incluir los tratos en azúcar futuro. De modo que el 1° de octubre de 1916 adoptó oficialmente su nombre actual.

La Lonja es una organización sin lucro, lo cual siempre parece sorprender a algunas personas. La Lonja no compra ni vende cosa alguna, siendo sencillamente un mercado público para aquellos que deseen comprar o vender. Por consiguiente, la Lonja no fija precios, sino que refleja los precios establecidos como resultado de la oferta y la demanda en la Lonja.

Todo trámite en la Lonja, aunque se limite a un solo comprador y vendedor, refleja hasta cierto punto el valor dado al producto en ese momento. De modo que las tendencias registradas en el mercado del azúcar se reflejan constantemente día tras día y hora tras hora.

Los socios de la Lonja tienen un objetivo general común: preservación de un mercado abierto y libre sobre bases iguales para todos. Con ello se cumplen las condiciones originales en que se fundó la Lonja.

En pocas palabras, las principales funciones de la Lonja se pueden expresar como sigue: (1) proveer y mantener un mercado público bien ordenado para la compra y venta de productos negociados en la Lonja; (2) establecer principios justos y equitativos en el mercado y preservar uniformidad en sus normas y reglamentos; (3) adoptar

normas de clasificación; (4) reunir datos y publicar precios y otra información relacionada con las industrias del café y del azúcar; y (5) superentender las operaciones de los que se sirven de las facilidades de la Lonja.

Entre sus múltiples beneficios, uno de los más importantes es lo que se llama "hedging." Esta es una forma de seguro comercial concebida para protegerse contra pérdidas y asegurar el crédito bancario. Puede implicar solamente la transferencia de un riesgo de un socio de la Lonja (productor, refinador o comerciante) a otro socio, como cuando un fabricante de azúcar desea vender un contrato amparando azúcares futuros para asegurarse contra pérdidos en su cosecha azucarera, y cuando un refinador desea comprar un contrato amparando azúcares futuros para asegurar sus existencias de crudos. Tanto el trámite de venta como de compra son operaciones protectoras, o lo que se entiende por "hedging". También puede implicar la transferencia del riesgo de un productor, comerciante o consumidor a un tratante o corredor quien compra porque anticipa un ascenso en el precio o vende porque anticipa un descenso. Por ejemplo, cuando un corredor *compra* un producto para entrega futura, y *vende* una cantidad igual del mismo producto para entrega inmediata, un trámite compensa o protege al otro. Por lo tanto, el riesgo del trámite para el futuro se reduce al mínimo.

He aquí algunos de los muchos tratantes o corredores que encuentran el mercado de futuros en la Lonja de importancia vital en sus trámites comerciales:

El Productor—que se protege antes, durante y después de la campaña de recolección según el precio y condiciones del mercado.

El Exportador — que puede haberle comprado al productor, y desea estar similarmente protegido.

El Importador—que generalmente desea protegerse contra riesgos de largo plazo desde el momento de la compra hasta el recibo y/o venta del producto.

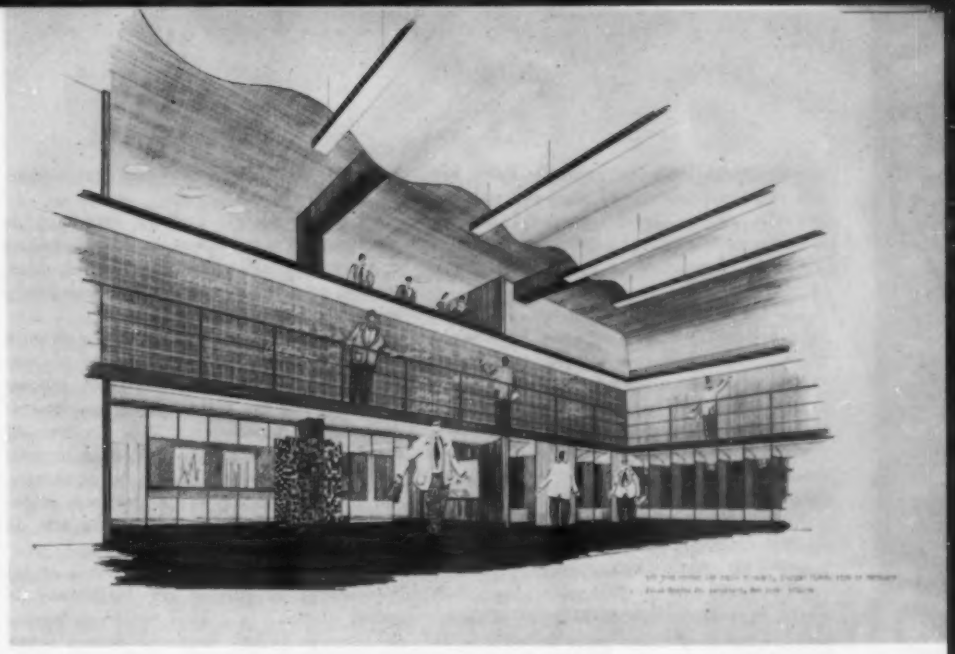
El Elaborador—o refinador que desea proteger sus existencias excesivas o amparar ventas cortas del producto terminado a un distribuidor o consumidor.

El Comerciante—generalmente el fuerte consumidor industrial o distribuidor que desea proteger sus existencias o amparar una venta corta adelantada.

Un importante beneficio de la Lonja para el refinador de azúcar es su capacidad de eliminar en gran parte los riesgos implicados en fuertes existencias. Por ejemplo, ante la gran tensión que se observa en el mundo hoy día, las oscilaciones en la distribución de azúcar refino a menudo son abnormales e imprevistas. En tales circunstancias, los refinadores se ven a veces forzados a mantener fuertes existencias de azúcar crudo y refino para poder satisfacer todas sus exigencias. No obstante, vendiendo azúcares futuros en la Lonja podrán reducir el riesgo en sus existencias que normalmente podrían resultar de la práctica citada.

A la inversa, si la tensión mundial llegase a acentuarse, provocando un marcado aumento inesperado en la demanda de azúcar, el refinador se protege con la compra de azúcares futuros. En tal caso, podrá aceptar la entrega de su compra o revenderla antes de la fecha de entrega y cumplir sus pedidos comprando crudos en plaza para entrega inmediata.

Todos los contratos tramitados en la Lonja deben ser liquidados a través de una Asociación Liquidadora, cuya organización es independiente de la Lonja. La principal función de esta Asociación es muy parecida a la de la casa de liquidaciones para los bancos. Todo socio tiene que adelantarle a la Asociación cierta cantidad de dinero que



La parte del nuevo edificio que ocupará la Lonja fué toda diseñada para facilitar sus operaciones. Obsérvense las casetas de teléfono convenientemente dispuestas para los socios y la decoración moderna de su espaciosa sala de operaciones.

Gustavo Lobo, centro, ex presidente de la Lonja, explicando su operación a Oscar Ledesma, Secretario de Industria y Comercio de Filipinas, derecha, y Salvador Oliveros, consultor técnico del Instituto Azucarero de Filipinas, en las oficinas de la Lonja en el viejo edificio en 113 Pearl Street.

constituye un fondo de garantía. Estos fondos se pueden aplicar al pago de cualquier pérdida o perjuicio sufrido por la Asociación por falta de cumplimiento de cualquier socio, de cuyo modo se protege la Asociación, los socios y los compradores.

La Lonja es administrada por una junta de directores a través de unos 20 comités. Los estatutos incluyen normas para superentender las negociaciones, regular los márgenes de utilidad, fijar límites para las oscilaciones de precios de día a día, rigurosas normas de clasificación y normas para resolver desacuerdos nacidos de cualquier contrato.

Como su expansión excede la cabida de sus oficinas en 113-117 Pearl Street, la Lonja está cambiando sus oficinas al edificio ultramoderno de reciente construcción en 79 Pine Street, donde ocupará el entresuelo, segundo y tercer pisos del edificio de 12 pisos totalmente provisto de equipo acondicionador de aire.

El nuevo edificio incluirá exteriores de mampostería y recuadros vítreos, elevadores o ascensores eléctricos de alta velocidad, sótano para estacionar 40 automóviles y ventanas al frente de tres calles.

La red telefónica de la Lonja es de gran importancia, ya que durante cada período de operaciones los tratantes salen apresuradamente de las plateas hacia sus casetas de teléfono particulares para verificar la reacción de sus clientes y obtener instrucciones sobre negociaciones subsiguientes. Por lo tanto, las casetas de teléfono se encuentran en los cuatro lados de la sala de operaciones próximos a las plateas.

Los nuevos trableros registradores de las operaciones se pueden ver fácilmente de ambas plateas; la galería tiene una baranda de acero liviano alrededor de tres lados, la que sirve de pasamanos y permite ver los tableros perfectamente, parte de los cuales queda más baja que la baranda.

De modo que al satisfacer las necesidades primarias de la Lonja, las nuevas oficinas representan la primera sede completamente integrada de una lonja de comercio. El plan y disposición de las oficinas se basó en tres importantes factores: funcionalismo, eficiencia y economía.

Henry George Greene fué el arquitecto del edificio, en tanto que el arquitecto de la Lonja fué Edwin Harris, Jr., que diseñó la sala de operaciones de acuerdo con los mejores principios observados durante un estudio especial de lonjas de comercio en todo el país. La directiva de la Lonja incluye a Leon Israel, Jr., presidente; Charles Lowry, vicepresidente; G. W. Knauth, tesorero; Frank E. Hobson, secretario; y A. D. Corbett, secretario administrativo.

■

Protegiendo al Productor de Azúcar

Por Arthur H. Lamborn, Jr.

Lamborn, Riggs & Co.

Corredores en Azúcares Futuros

Nueva York, N. Y.

El trato en azúcares futuros es un negocio en gran escala y muy importante. Ocupa la atención exclusiva de gran número de expertos en el ramo perfectamente entrenados. Domina la mente de aquellos dedicados a la producción y venta de la enorme cosecha mundial de azúcar.

Y esto es lo que cabe esperar, ya que la New York Coffee & Sugar Exchange, Inc. (Lonja de Café & Azúcar de Nueva York, Inc.) es el nervio central del mercado mundial azucarero donde entran en juego de un minuto a otro las múltiples influencias que establecen el precio del azúcar.

Se negocian millones de toneladas de azúcar cada año y se fijan precios para entregas hasta diecisiete meses en el futuro, lo que ayuda considerablemente a los productores y consumidores industriales a formular planes de antemano para largos períodos.

Se ha creado un sistema muy complejo para manejar y ejecutar los pedidos, para recoger y diseminar información, y para proteger los intereses de todos aquellos—grandes o pequeños—que participan en el mercado. La santidad de los contratos está protegida por la rígida regulación de depósitos marginales.

Desde luego, aquí no nos ocuparemos del funcionamiento de la Lonja, sino de las operaciones protectoras o compensadoras de riesgo llamadas "hedging," prestando especial atención al papel que pueden y deben jugar en los programas de ventas del productor de azúcar.

"Hedging" No Es Especulación

Aunque parezca extraño, todavía existen en el mercado aquellos (afortunadamente cada día en menor número) que ven con desconfianza el mercado de futuros, quienes parecen creer que, a lo sumo, las operaciones en futuros son arriesgadas y que no representan el mercado real. Esta actitud parece ser sumamente intransigente e irreconciliable, pero aún existe.

En efecto, existen aquellos que rechazan rotundamente la idea del mercado de futuros o que consideran que los tratos en futuros no son nada más que pura especulación. Esto está lejos de ser la verdad. ¿Qué podría ofrecer un ejemplo de especulación más patente que un productor o un consumidor sentado en una pila de azúcar no protegido? Los riesgos a que estaría expuesto son evidentes.

Lo que éstos dejan de ver es la oportunidad brindada tanto al productor como al consumidor para eliminar estos riesgos, comprando y vendiendo sus azúcares para entrega en el futuro en una Lonja bien organizada donde pueden encontrar en todo momento oferta y demanda. Desde luego, las consideraciones fundamentales tras la idea de futuros protegidos son las ventajas obtenidas por un productor vendiendo en un mercado para entrega futura cuando el mercado de azúres disponibles tal vez no pueda absorber su oferta.

Por lo tanto, otro fin de este artículo será desvanecer la idea de que el trato en futuros es el equivalente de la especulación, demostrando cómo el mercado de *crudos*, o *disponibles*, como algunos suelen llamarlos, está íntimamente relacionado con el mercado de futuros, y cómo el uno depende del otro. Tal vez sea conveniente sentar la base de nuestra explicación de "hedging" comenzando con un análisis de la relación entre *crudos* y *futuros*.

Crudos y Futuros Intimamente Relacionados

Es importante comprender que los crudos y futuros se pueden traducir fácilmente, crudos por futuros y futuros por crudos, bajo el punto de vista estrictamente comercial. En el caso de contratos amparando

tanto futuros mundiales como nacionales, se estipula la entrega y recibo de azúcares crudos contra compromisos futuros. En el caso de azúcares mundiales, las entregas se pueden hacer en ciertos almacenes autorizados en determinados puertos de Cuba, o en almacenes afianzados en Norfolk, Virginia, para azúcares de países otros que Cuba. No obstante, jamás se ha ejercido la opción de entrega en Norfolk, ya que el comercio azucarero ha encontrado que las entregas en puertos de Cuba son más convenientes y prácticas. Recientemente, los socios de la Lonja acordaron ampliar el contrato mundial, a partir del 1° de enero de 1959, para amparar entregas en puertos fuera de Cuba de acuerdo con ciertas especificaciones de la Lonja. En el mercado nacional, las entregas contra compromisos futuros se efectúan a base de "franco fuera del buque" en el puerto de Nueva York.

Sin embargo, las entregas contra contratos son más bien "la excepción que la regla." La mayoría de interesados que utilizan la Lonja creen más conveniente liquidar sus compromisos futuros comprando o vendiendo sus propios compromisos, según sea el caso, sin llevar a cabo la entrega o recibo en la Lonja. Más adelante explicaremos cómo se logra esto, cuando ofreceremos ejemplos prácticos de las distintas normas seguidas en "hedging." Baste con decir por el momento que la cantidad de azúcar ofrecida en la Lonja es insignificante comparada con el monto de los trámites en azúcar. Por ejemplo, hasta el 31 de agosto de este año se entregaron solamente 70,850 toneladas contra compromisos en futuros mundiales comparado con compraventas durante el mismo período ascendentes a 7,657,100 toneladas.

De modo que el tenedor de azúcares disponibles puede estar seguro de que al vender en la Lonja o al reponer la venta de azúcares disponibles comprando contratos en la Lonja, está tratando en un mercado que refleja muy aproximadamente el valor de crudos. No obstante, muchas veces ocurre que el vendedor puede obtener un precio más alto en la Lonja que en el mercado de azúcares disponibles, la razón de ello siendo que algunas veces el mercado de futuros asciende más que el mercado de disponibles, ya que el sensible mecanismo de la Lonja de futuros hace caso omiso de eventos que puedan afectar los precios del azúcar. En el caso del comprador, sucede lo contrario.

El hecho que la Lonja de Café & Azúcar de Nueva York es un mercado continuo y público durante las horas de operaciones le imparte un alto grado de estabilidad a todo el complejo de tratos en azúcar. Las ofertas y cotizaciones sobre crudos para entrega futura siempre se basan estrechamente en los valores futuros para la fecha de entrega en cuestión. La pregunta si los futuros determinan el precio para azúcares crudos, o vice versa, es como preguntar "cuál vino primero, la gallina o el huevo." En cualquier momento, uno u otro mercado puede ser un factor dominante en la determinación del precio, pero aún así es inevitable que los dos mercados guarden estrecha relación, especialmente en los trámites de competencia que rigen nuestro mercado azucarero moderno. Desde luego, hay diferencias de precios entre azúcares disponibles y futuros para entrega en distintas fechas. Por ejemplo, el mercado nacional casi siempre ofrece primas sobre entregas lejanas. En el mercado mundial tenemos tanto primas como descuentos sobre entregas lejanas, según se sientan los compradores y vendedores acerca del mercado. Sin embargo, en años recientes, las primas sobre entregas lejanas han sido más bien la excepción que la regla.

El Precio de Crudos en Plaza

Aún nos queda por examinar otro importante aspecto del mercado de crudos disponibles, o sea el precio de crudos en plaza. El precio en plaza que fija diariamente la Lonja de Café & Azúcar de Nueva York, Inc., se usa extensamente para fijar el precio en contratos azucareros tanto en el mercado mundial como nacional. Hoy día, la aplicación de mayor significado y más importante del precio en plaza es en las liquidaciones entre fabricantes de azúcar y productores de caña, y en las ventas de azúcar por los fabricantes a corredores o compradores finales. Sin embargo, a menudo sucede que el precio en plaza se supone representar el *único* valor de azúcares crudos para ese día. En el curso de operaciones durante el día, el valor de azúcares disponibles así como de futuros puede variar considerablemente del precio en plaza fijado en cierto momento cada día, el cual refleja el mercado en ese entonces. Esto se hará más evidente al examinar los cuadros insertos. Se observará que en la mayoría de casos las oscilaciones diarias en futuros varían considerablemente cuando se comparan con los precios en plaza. Nos acercaríamos más a la verdad si dijésemos que el valor del azúcar crudo para cualquier día se ajusta a las oscilaciones en el valor de futuros en plaza. Hablando en términos generales, no obstante, es evidente que la tendencia del precio en plaza y del valor de futuros para pronta entrega siguen uno al otro muy aproximadamente.

Ventajas del Principio de "Hedging"

Ahora que hemos examinado brevemente la relación entre el mercado de crudos y los contratos de futuros podemos preguntar ¿cuáles son las ventajas específicas del principio de "hedging" en la Lonja? En primer lugar, como se ha indicado, fácilmente pueden ocurrir variaciones entre el precio de crudos y el valor de futuros, siendo estas oscilaciones las que le dan al productor alerta la oportunidad de vender o comprar a mejor precio que el valor corriente de crudos en el mercado. Segundo, el productor tiene la posibilidad de obtener un precio promedio más ventajoso en sus operaciones en futuros por la razón que podrá vender o comprar en cantidades de tan poco monto como 50 toneladas. Tercero, debemos hacer hincapié sobre la mayor flexibilidad al alcance del productor en su programa de compraventa a través de la Lonja. Lo más importante, desde luego, es el valor inherente de la seguridad que nace del "hedging," que es la razón primordial de la existencia de la Lonja.

"Hedging" en Ventas de Crudos

La forma más común de "hedging" es lo que llamamos venta de protección directa. Este trámite implica la venta de contratos de futuros contra la producción de azúcar futura a precios ventajosos para el productor. Una operación de esta índole sirve de protección contra oscilaciones en el mercado. Normalmente, la operación de "hedge" termina con la venta del crudo contra el cual fué originalmente tramitada.

Como ejemplo de una venta de protección, tomemos un productor que desee proteger cierta cantidad de azúcar para entrega futura. Esto se logra con la venta en la Lonja de cierta cantidad de azúcar a un precio o precios aceptables para el productor. En muchos casos las órdenes de venta se expiden de modo que cada punto de ascenso en el mercado le permite vender parte de la cantidad total que desea vender. Cumplido su programa de ventas, el único paso que le queda es vender el azúcar disponible en otra fecha. Simultáneamente con la venta de crudos se compran o cubren los contratos de futuros, con lo cual se termina el trámite. Después de tomar en cuenta la pérdida o ganancia en los futuros y el precio de venta del azúcar crudo, el resultado neto será un ingreso para el productor aproximado al precio de su venta de protección.

En este sentido, conviene tener en cuenta que una *ganancia* o una *pérdida* en el trámite de futuros no es de por sí importante. El resultado neto para el productor, después de tomar en cuenta aquella parte de la operación relacionada con futuros, es el factor importante. El aspecto más importante del trámite de "hedging" es que permite que el productor pueda obtener un precio por su azúcar de acuerdo con los precios obtenidos en sus ventas de protección o "hedging." *No* hay diferencia alguna entre la venta de azúcar a un precio determinado y la venta de futuros, ya que el ingreso para el productor es el mismo en ambos casos.

Para ilustrar lo anterior, supongamos que un productor decide vender 200 contratos (10,000 toneladas) No. 4 para julio a un precio escalonado comenzando con 4.00 centavos—20 contratos por cada punto de ascenso. Suponiendo un mercado en ascenso, el primer avance ocurriría a partir de 4.00 centavos, y el pedido quedaría satisfecho a un precio final promedio de 4.045 centavos sobre los 200 contratos.

Subsiguientemente el productor vende 10,000 toneladas de azúcar crudo para embarque en junio/julio. Entonces coloca un pedido para cubrir las operaciones de

Precio de Azúcares Crudos Mundiales Desponibles y Futuros, Enero/Agosto, 1957.

"hedging" a 4.20 cts. o más en el mismo día. La protección sobre este pedido queda completa a 4.19 cts.

Los elementos que entran en esta operación son los siguientes:

Precio de venta de crudos	4.20¢	
Precio de venta de compensación	4.045¢	
Precio de venta para cubrir la venta de compensación	4.19¢	
Pérdida en futuros	.155¢	
Comisión sobre futuros (al tipo cargado a socios)	.013¢	
Pérdida total en futuros		.168¢
Ingreso neto sobre crudos		4.032¢

Por lo anterior se ve claramente que en una operación de "hedging," el ingreso para el productor es bastante aproximado al precio original de la operación. No obstante, pueden ocurrir pequeñas diferencias; por lo general, el ingreso *neto* recibido por el vendedor de azúcares disponibles oscila muy próximo al precio de la venta original de compensación. A veces también se puede concluir una venta para cubrir la venta de compensación a un precio que le deja al vendedor un ingreso superior al precio de

la venta de compensación. El momento más propicio para saldar una operación de "hedging" es cuando el mercado va en descenso—cuando el mercado de futuros en la Lonja desciende más que el mercado de crudos disponibles (indicando precios menores). Cuando se puede hacer esta operación, el ingreso neto superará el precio de venta de protección.

Un caso análogo lo tenemos en lo que viene ocurriendo últimamente. Supongamos que un productor venda 200 contratos No. 4 amparando futuros para julio al precio de 4.05 cts., y que el mejor precio obtenible en ese momento por crudos de la nueva cosecha sea alrededor de 4.00 cts., es evidente que en esa venta tendrá una ventaja de tres a cuatro puntos sobre el mercado de crudos. Poco más tarde vende el azúcar crudo a 3.90 cts. y coloca un pedido a 3.90 cts. o más para cubrir el compromiso futuro. Debido al descenso ocurrido durante ese período, los futuros son liquidados a un precio promedio de 3.89 cts. Como resultado de esa operación tendremos lo siguiente:

Venta de crudos		3.90¢
Precio de venta de compensación	4.05¢	
Precio de venta para cubrir la venta de compensación	3.89¢	
Ganancia en futuros	.16¢	
Comisión sobre futuros (al tipo cargado a socios)	.013¢	
Ganancia neta en futuros		.147¢
Ingreso neto sobre crudos		4.047¢

Este ejemplo demuestra claramente cómo una venta de protección redundó en un ingreso para el productor bastante mayor que el precio corriente en el mercado en el día que se vendió el azúcar, y a un precio mayor del que hubiera sido posible obtener por crudos cuando se inició el trámite de "hedging."

A fin de ajustarnos a la realidad, los ejemplos anteriores se basan en condiciones verdaderas tal como existían durante el período a que aludimos, y para ser todavía más explícitos, se basan en azúcares cubanos f.a.b.

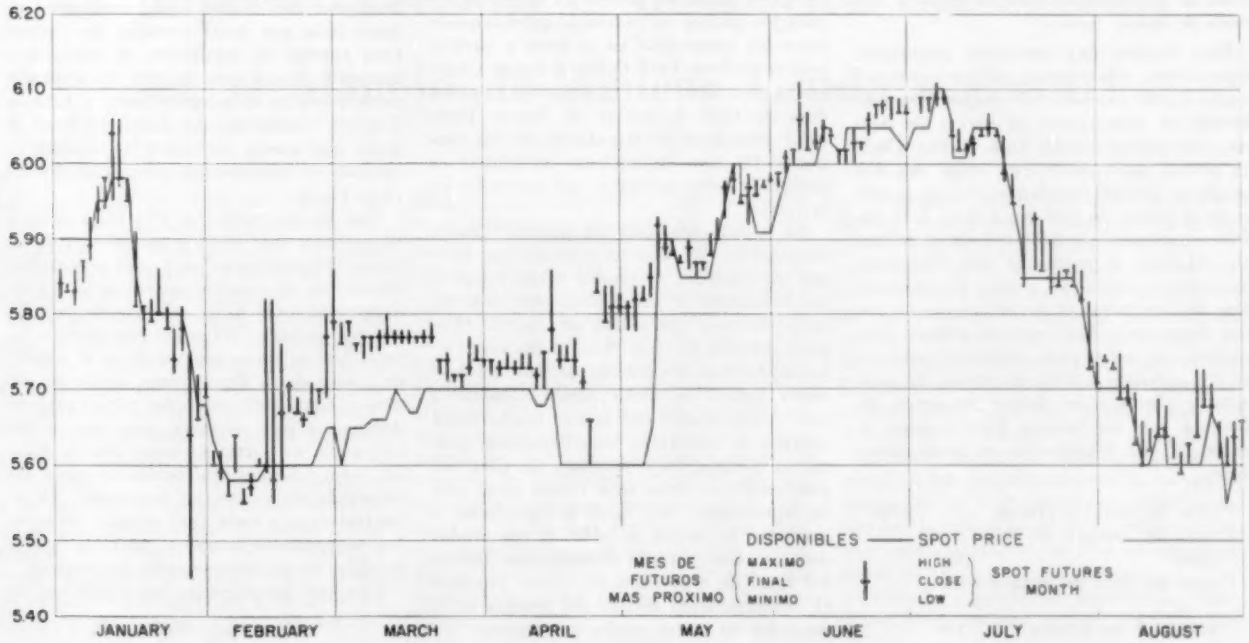
Los contratos de futuros también se pueden cubrir, cambiando a una fecha de entrega futura más lejana. Un trámite de esta índole implica la compra para cierta fecha de entrega simultáneamente con la venta para otra fecha de entrega a determinada diferencia de precio. Esto resulta especialmente ventajoso para el productor si la prima obtenida sobre la fecha de entrega más lejana supera los costos incurridos por el productor en mantener su azúcar en almacén. En la práctica, el cambio de la fecha de entrega se puede continuar de mes a mes y de año a año, si el productor lo desea, pero las operaciones de "hedging" suelen ser cubiertas en el momento que se efectúa la venta del azúcar crudo, con lo cual queda terminada toda la operación.

"Hedging" Amparando la Reposicion de Azúcares Crudos

Además de las ventajas generales de las ventas de azúcar crudo protegidas, la Lonja tiene gran valor como medio para entrar en trámites amparando la reposición de crudos. En lo que al productor de azúcar crudo se refiere, esta clase de trámite es muy conveniente, porque le permite vender su azúcar para embarque en cierta fecha, y al mismo tiempo mantener su posición en el mercado, reponiendo la venta de crudos con futuros. Normalmente, esta operación beneficia al productor más que todos cuando se ve obligado a vender a un precio básicamente inadecuado, ya sea por la necesidad de hacer más espacio disponible en su almacén o hacer su posición económica más firme o solvente. Una vez establecida su posición futura en la Lonja, la operación se liquida en cualquier momento, vendiendo todo o parte de su azúcar futuro, según lo crea conveniente. En efecto, entonces, un trámite de esta índole significa un cambio de tenedor de crudos disponibles a un tenedor de futuros cuando un productor, por una razón u otra, vende su azúcar a un precio que considera representa un descuento en el valor real de su azúcar en el mercado.

El curso seguido en esta clase de operación varía según las circunstancias relacionadas con la fecha de entrega. Normalmente, el amparo de reposición se establece cuando se vende el azúcar. En otras palabras, los futuros se compran simultáneamente con la venta del azúcar disponible. Aunque a veces los contratos de compra de futuros estipulan como fecha de entrega la que más se aproxime a la fecha de embarque estipulada en los contrato amparando la venta del azúcar disponible, algunos productores prefieren aplazar la reposición a una fecha posterior a la fecha estipulada para la entrega del azúcar disponible, especialmente si la venta se puede llevar a cabo sobre bases más o menos iguales. En otras palabras, si los futuros se pueden comprar para entrega posterior sin pagar prima, o pagando una prima mínima, se puede seguir esta norma. Lo cierto es que a veces se pueden comprar futuros para entrega

Precios de Azúcares Crudos (E.U.A.)



posterior a precios inferiores al precio en plaza de azúcares disponibles, tal como sucedió el año pasado. Esto le brinda al productor la ventaja de tiempo adicional para liquidar su cambio, o tal vez estime que una fecha de entrega más lejana le permita obtener mejor precio por su azúcar. Primordialmente, no obstante, el objeto de proteger las reposiciones de crudos disponibles es que el productor pueda vender su azúcar y al mismo tiempo mantener su posición en el mercado.

Como ejemplo de una operación de esta índole, supongamos que un productor decide vender cierta cantidad de azúcar disponible al mejor precio vigente en el día de su decisión. Seguidamente, él coloca pedidos para cubrir toda o parte de la venta con compras de futuros. Mediante estos trámites, él ha dado los pasos necesarios para mover el azúcar crudo y al mismo tiempo reponer con futuros su posición en el mercado. Entonces su posición en futuros sería tratada del mismo modo que una posición en crudos, o sea que los futuros son vendidos a un precio o precios de acuerdo con el juicio que el productor haya ejercido en el mercado. Después de que la posición en futuros ha sido vendida, la operación queda terminada. Tomando en cuenta la pérdida o ganancia en las ventas de futuros, el resultado *neto* será que el productor recibirá un precio aproximado al precio promedio de *venta* de su posición en futuros.

Las ganancias o pérdidas en las operaciones de amparo de reposiciones se toman en cuenta del mismo modo que en las ventas de compensación de crudos. Una vez más, conviene tener presente que el resultado *neto* es el aspecto más importante de las operaciones de esta índole. Como se dijo antes, *no* hay diferencia alguna entre una venta de azúcar crudo a cierto precio y una venta de azúcar futuro.

Para ilustrar una operación amparando reposiciones, supongamos que un productor vende 10,000 toneladas de crudos para embarque en mayo/junio al precio de 3.90 cts. base azúcar cubana f.a.b. Luego coloca un pedido para cubrir esta venta con 200 contratos (10,000 toneladas) No. 4 de futuros al precio de 3.90 cts. o más. Este pedido es cumplido a 3.90 cts. en el mismo día, dándole al productor una reposición equivalente contra su venta. El siguiente paso del productor es decidir el precio que está dispuesto a fijar para su azúcar. Más adelante da orden para vender su posición de 200 contratos a 4.00 cts. o más. El mercado se afirma y se obtiene un precio de 4.00 cts. por los futuros. Esto termina la operación. La liquidación se haría como sigue:

Precio de venta de crudos		4.90¢
Precio de compra de futuros	3.90¢	
Precio de venta de futuros	4.00¢	
Ganancia en futuros	.10¢	
Comisión sobre futuros (al tipo cargado a socios)	.013¢	
Ganancia neta en futuros		.087¢
Ingreso neto sobre crudos		3.987¢

La principal diferencia entre las operaciones de protección contra reposiciones y contra ventas es que las primeras se liquidan conjuntamente con ventas de crudos, en tanto que las segundas se liquidan independientemente, ya que los crudos fueron vendidos en el momento que se hizo la operación. Este factor simplifica el trámite de la protección contra reposiciones, puesto que es tratado independientemente y no tiene que ser liquidado conjuntamente con ventas de crudos.

Tal como la posición de las ventas de protección se puede adelantar cambiando de una posición a otra, así puede hacerse con la protección de reposiciones. La práctica seguida en tal caso implicaría la venta de una posición simultáneamente con la compra de otra. Una operación de esta índole es dictada por la impresión que el productor tiene del mercado.

Trueque Contra Azúcares Disponibles

La tercera y la más interesante de las formas de trámites en futuros es generalmente conocida como el trámite "Contra Disponibles."

El trámite "Contra Disponibles" es una operación donde azúcares disponibles y futuros, en igual cantidad, son trocados o cambiados simultáneamente entre dos interesados. Básicamente, esta clase de trámite se aparta de la función normal de la Lonja como mercado libre por la razón que el cambio o trueque es convenido previa y privadamente entre los interesados. La cantidad a ser trocada es, entonces, registrada en la sala de operaciones de la Lonja como una operación designada con las letras "AA" en lugar del precio. El precio fijado para los futuros es cenvenido privadamente entre los interesados en el trato y participado a la New York Coffee & Sugar Clearing Association, Inc. (Asociación Liquidadora de Café & Azúcar de Nueva York, Inc.) para fines de liquidación de los contratos. De aquí en adelante, el trámite es manejado como cualquier otra operación en la Lonja.

La ventaja principal del trámite "Contra Disponibles" se basa en el hecho que hace que un vendedor de crudos pueda reponerlos *inmediata y simultáneamente* con futuros sin tener que acudir al mercado libre para cubrilos. El trato "Contra Disponibles" presupone que el vendedor de "disponibles" desea cubrir su venta inmediatamente y que el comprador del azúcar crudo desea cubrirse o protegerse inmediatamente contra su compra. Bajo el punto de vista del productor, este trato nace (como en el caso de reposiciones) del deseo del productor o vendedor de azúcar de salir de sus crudos durante cierto período de embarque. Difiere del trato de reposición en cuanto requiere el consentimiento mutuo del comprador y vendedor de trocar crudos por futuros.

El precio a que se vende el azúcar crudo generalmente determina el precio aplicado al trueque de futuros. Aunque esta no es una regla fija, la práctica seguida en tratos en azúcar ha sido fijar para futuros el mismo precio aplicado a contratos de crudos, a no ser que los futuros hayan sido negociados para una posición avanzada cuando los valores puedan ser distintos. Normalmente, este sería el caso si los crudos, por ejemplo, fuesen negociados para embarque en junio/julio y los futuros para septiembre.

Para ilustrar este trato más claramente, supongamos que un productor se encuentra en la necesidad de vender 10,000 toneladas de crudos para embarque en junio/julio, pero que no desea ceder su posición en el mercado. Por lo tanto, concluye que un trato que implique la compra de futuros para septiembre le dará la oportunidad de vender su azúcar para embarque durante cierto período, y de obtener, al mismo tiempo, una reposición adecuada en futuros. Por último, cuando el corredor del productor es avisado de los deseos de su representado en este sentido, trata de encontrar en el mercado un comprador de crudos para embarque en junio/julio que esté dispuesto a entrar en un trato de esta índole.

Por lo general, un operador en el mercado mundial azucarero se interesará en una proposición de esta naturaleza. La ventaja para él dependerá de que pueda contar con azúcar para fines de oferta y estar, al mismo tiempo, protegido contra riesgo por el amparo que adquiere como parte del trato. Por otra parte, el operador puede ser tenedor de futuros de largo plazo y desear convertir esta posición en crudos por la venta de futuros mediante el trueque.

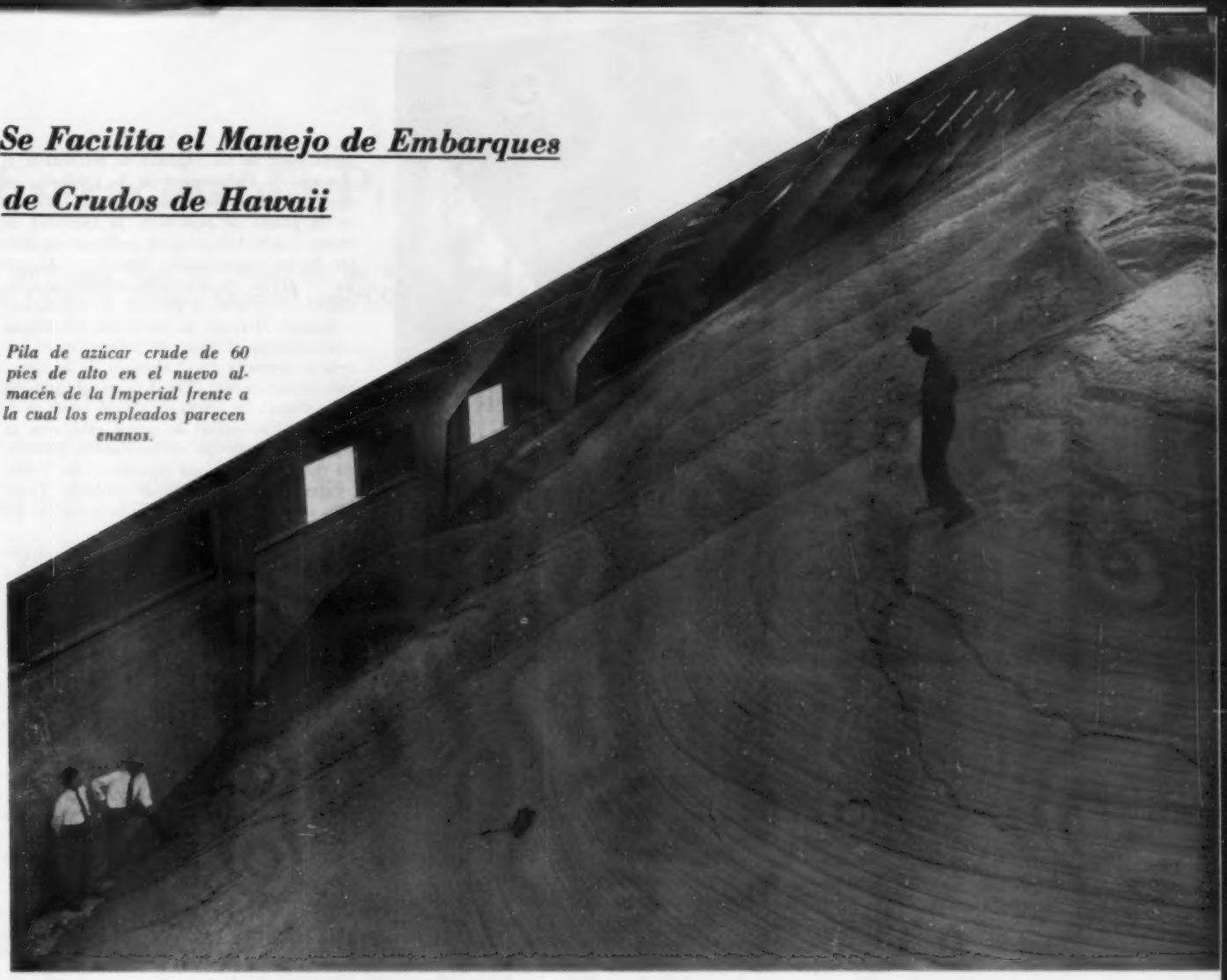
En beneficio mutuo, pues, el vendedor y el comprador convienen en trocar las 10,000 toneladas de crudos para embarque en junio/julio por igual cantidad de futuros para entrega en septiembre al precio mutuamente satisfactorio de 4.00 cts. aplicable tanto a crudos disponibles como a futuros. Una vez establecidas las bases del trato, lo único que queda por hacer es concluir el contrato de compraventa y registrar el trato en la Lonja.

Una de las partes en el trato ordena a su corredor que anuncie en la sala de la Lonja 200 contratos No. 4 para septiembre. Hecho ésto, el corredor que anunció el trato es avisado de la firma o firmas de corredores que se harán cargo del compromiso futuro. Ambas partes pueden dejar el trámite en manos de la firma/firmas donde se originó el trato, o el comprador tal vez prefiera designar a otro corredor para que se encargue de su parte del trato. Por lo general, estos trueques son tramitados entre dos firmas de corredores en representación de los tratantes, y cada cual se hace cargo de los compromisos futuros y contratos de disponibles de sus representados respectivos.

Una vez determinadas las posiciones de

(*Sigue en la página* 63)

Se Facilita el Manejo de Embarques de Crudos de Hawaii



Pila de azúcar crude de 60 pies de alto en el nuevo almacén de la Imperial frente a la cual los empleados parecen enanos.

La Imperial Termina la Instalación del Sistema para el Manejo de Azúcar Crudo a Granel

El nuevo sistema para el manejo de azúcar crudo a granel recientemente implantado por la Imperial Sugar Company de Sugar Land, Texas, está llamando mucha atención en la industria azucarera.

Entre las facilidades que la Imperial ha puesto en servicio recientemente figuran un almacén en Sugar Land de mayor cabida que un campo de balompié y un sistema completamente mecánico para la descarga de miles de toneladas de azúcar crudo a granel en Galveston, Texas.

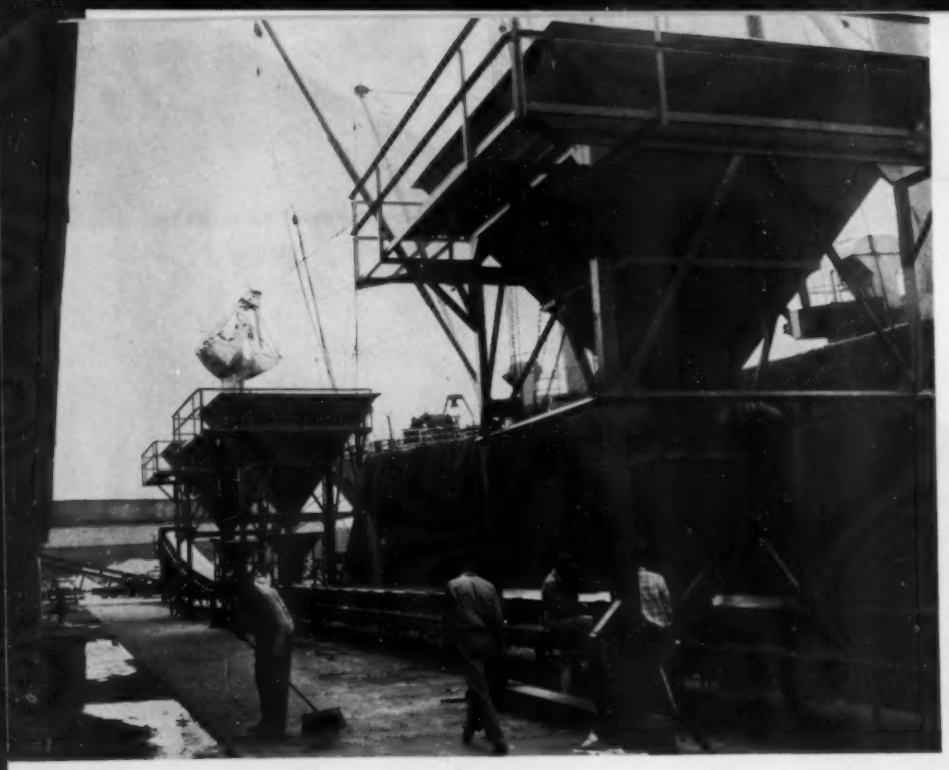
Según el Sr. W. H. Louviere, presidente de la Imperial, la nueva instalación de su refinería para el manejo de azúcar crudo prosigue la tendencia en toda la industria azucarera hacia la mecanización. La industria azucarera está tornando a la mecanización para contrarrestar los costos de producción constantemente en aumento y satisfacer la creciente demanda de azúcar del pueblo consumidor cada día más numeroso rápida y eficazmente, dice el Sr. Louviere.

La Imperial comenzó a cambiar su método de manejar el azúcar crudo después de haber firmado un contrato de largo plazo que le permitirá a su refinería en Sugar Land importar fuertes cantidades de azúcar crudo de Hawaii. Ahora que su nuevo almacén en la refinería e instalaciones en el puerto de Galveston están terminados, la refinería de la Imperial puede recibir azúcar crudo de regiones productoras de caña tanto en el Pacífico (Hawaii) como en el Atlántico (principalmente Cuba y Puerto Rico). Generalmente, las refinerías sólo reciben sus crudos de una u otra de estas regiones.

Los mismos buques que antes transportaban el azúcar crudo envasado en sacos, ahora lo portan y entregan a granel. Un solo buque puede portar entre 7,500 y 13,000 toneladas, de modo que un cargamento de azúcar crudo basta para mantener la refinería de la Imperial funcionando de 10 a 12 días de 24 horas, o sea día y noche. Esta refinería recibe de 30 a 35 embarques o cargamentos cada año, lo que oscila con el consumo de azúcar.

El nuevo sistema de descarga de la Imperial es una verdadera maravilla mecánica compuesta de transportadores automáticos, enormes tolvas, y topadoras o empujadoras para mover el azúcar, el cual se encuentra ahora en operación en Galveston.

Como la mayoría de buques de carga tienen cinco bodegas, se han instalado per-



En Galveston, el azúcar crudo es descargado del buque a granel con cucharones de almeja, vaciado en tolvas y conducido mecánicamente a los vagones de ferrocarril que aparecen abajo.

mamentemente cinco altas tolvas en forma de embudo en el muelle, convenientemente dispuestas para poder descargar las cinco bodegas simultáneamente.

El azúcar es retirado de las bodegas del buque y vaciado en las tolvas por cucharones de almeja operados por el equipo de maniobras del propio buque. Cuando la descarga de las bodegas llega a cierto punto, el azúcar en los rincones es arrimado hacia el centro de las bodegas con hojas empujadoras y recogedores para que pueda ser alcanzada por los cucharones de almeja.

La descarga de un buque totalmente cargado de azúcar requiere de cinco a ocho días de 16 horas de trabajo, la que se puede realizar a razón de unas 50 toneladas de cada bodega por hora.

Desde las tolvas en el muelle, el azúcar fluye a una banda transportadora de 400 pies de largo constantemente en movimiento que corre pararela al costado del buque. De aquí pasa a otra serie de bandas que lo conducen a través del almacén en el muelle a vagones de ferrocarril.

Según el azúcar cae de las tolvas a la banda transportadora, se extiende un brazo mecánico giratorio cada 30 segundos y toma dos onzas de azúcar para muestra. Estas muestras se mezclan y se envían al comprador y al vendedor, y a un laboratorio independiente. La liquidación final se hace a base de lo que acuerden las tres partes. En la primera etapa de la operación de descarga, las muestras de azúcar se toman directamente de las tolvas a mano a intervalos regulares.

En los vagones de ferrocarril, el azúcar cae de la banda transportadora en un lanzador, cuya acción rotatoria lo lanza a ambos extremos del vagón. Terminada la carga del vagón, el lanzador se cambia a otro vagón.

La Imperial cuenta ahora con cuatro combinaciones de transportador y lanzador, con lo que puede cargar cuatro vagones simultáneamente. La empresa proyecta agregar dos combinaciones a fin de poder cargar seis vagones a la vez. Los vagones cargados forman trenes, que son llevados desde Galveston hasta Sugar Land.

A veces el azúcar crudo es entregado directamente de los vagones de ferrocarril al proceso de elaboración en la refinería, en cuyo caso los vagones son situados a lo largo de la planta de lavado de la Imperial en Sugar Land. Allí, se usan arrimadores dentro de los vagones para empujar y descargar el azúcar en una tolva subterránea, de donde es llevado al proceso de refinación.

Cuando el ritmo de recepción del azúcar crudo excede el ritmo de refinación, el exceso se deposita en el almacén de la Imperial ultramoderno, el cual tiene cabida para 40 milliones de libras de azúcar crudo y es el edificio industrial de mayor cabida en la región sudoccidental de los Estados Unidos. Su piso tiene un área superficial de 27,200 pies cuadrados, o .3035 de hectárea. Tiene 340 pies de largo, 80 pies de ancho y 60 pies de alto.

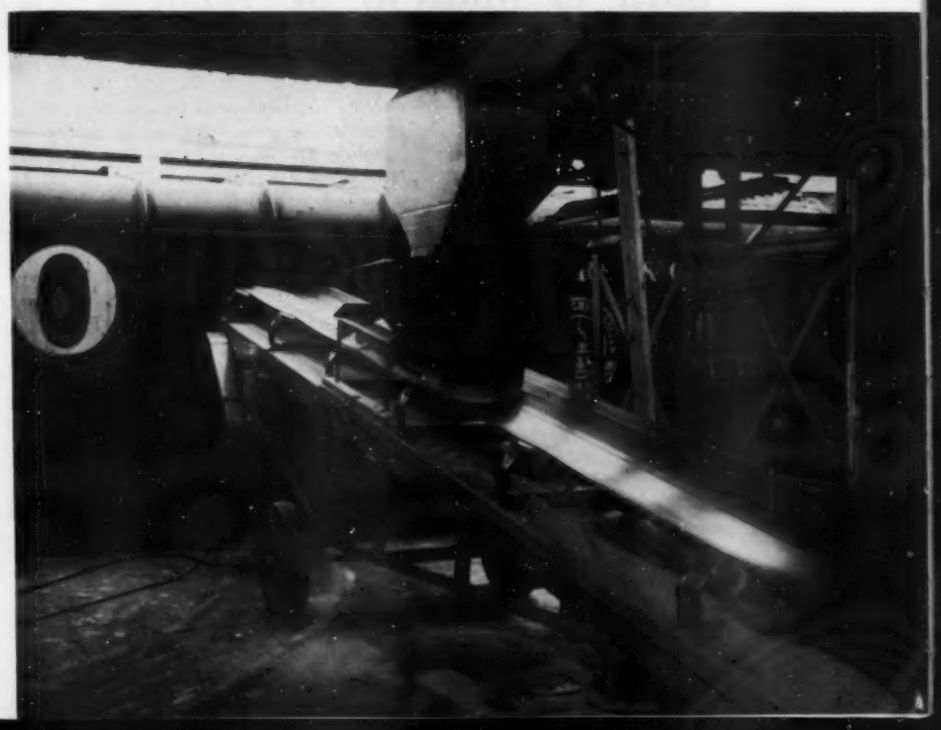
En el almacén se pueden descargar cuatro vagones de ferrocarril a la vez del mismo modo que se hace en entregas directas a la refinería, o sea en una enorme tolva subterránea con arrimadores. De aquí, el azúcar es llevado por bandas transportadores gradualmente a diversas partes del almacén. Un sistema de bandas transportadoras secundarias conducen el azúcar a lo alto del almacen, de donde se deja caer uniformemente para formar una enorme pila que en tiempo llega hasta el techo.

El azúcar crudo se retira del almacén por un túnel largo que corre longitudinalmente debajo del centro del edificio. De aquí cae en tolvas y bandas transportadoras que parten del piso del almacén. El despejo final del almacén se lleva a cabo con hojas topadoras que empujan el azúcar remanente hacia el túnel.

La refinería Imperial es una de las pocas en los Estados Unidos dispuesta para mane-

(Sigue en la página 64)

Banda transportadora montada en ruedas que forma parte del nuevo sistema mecánico para el manejo de azúcar crudo a granel en el puerto de Galveston, Texas. Aquí, el azúcar es descargado del buque y transbordado a vagones de ferrocarril que lo transportan hasta Sugar Land, Texas.



Extractos de Publicaciones Azucareras

Publicados bajo los Auspicios de la Sociedad Internacional de Tecnólogos Azucareros de Caña por Arreglo Especial con SUGAR y AZUCAR—Dr. O. W. Willcox, Redactor Técnico

Agronomía

Matamalezas en los Cañaverales de Formosa

N. P. CHOW, *Taiwan Sugar Experiment Station*, Informe No. 14, págs. 16-35; Resumen en inglés (1956).

Entre otros herbicidas químicos, CMU (3- (P-clorofenol) -1, 1- dimetilurea) a razón de 3-4 kg/hectárea ha contenido por completo la mayoría de yerbajos nocivos sin causar efecto perjudicial en la germinación de la semilla de caña. Su efecto generalmente duró de 2½ a 3 meses. Tampoco hubo retardo en la germinación ni desarrollo de la caña nueva cuando la aplicación se aumentó a 8 kg/ha. En algunos experimentos aumentó la germinación, el retoñamiento y el desarrollo de la caña nueva. Pero el alto costo del producto CMU lo hace antieconómico en Taiwan en el presente.

El compuesto 2,4-D contuvo los yerbajos de hoja ancha eficazmente en condiciones de temperatura y humedad favorables, destruyó el crecimiento superficial de coquí o juncia *(Cyperus rotundus)*, e impidió que volviese a crecer. Debido a su bajo costo, la sal sódica de 2,4-D resultó ser uno de los herbicidas más prometedores probados hasta la fecha. No obstante, a veces el 2,4-D tuvo un efecto perjudicial sobre la germinación.

Los resultados del tratamiento previo a la germinación con TCA a razón de 15 kg/ha fueron similares a los del tratamiento con 2,4-D a razón de 2 kg/ha, mientras que los resultados de TCA a razón 10 kg/ha fueron decididamente más malos. La más alta concentración de TCA lo colocó en una posición desfavorable en comparación con 2,4-D al mismo precio unitario.

Agroxome-3 (una forma líquida de MCP fabricada por la ICI) a razón de 7 litros/ha, aunque más seguro para la germinación, no fué tan eficaz como 2,4-D (sal Na) a razón de 2 kg/ha. El aumento en la razón de aplicación de Agroxome tal vez cambiase los resultados, pero su mayor costo lo haría impráctico.

Kanex (un producto de la ICI que contiene PCP) usado solo en tratamientos previos a la germinación no acusó buena reacción reprimente. Si se aplica después de la germinación, la proporción recomendada tal vez no sea suficiente.

Las condiciones climáticas tienen mucho que ver con el uso de herbicidas químicos en Taiwan. El exceso o insuficiencia de lluvia después de las aspersiones puede reducir o limitar la eficacia de estos herbicidas, mientras que las condiciones de humedad óptima aumentan su eficacia. El aplazamiento de las primeras aspersiones de herbicidas hasta después de las labores de cultivo y abonamiento (unos 45 días después de la siembra) con la idea de asegurar buena germinación, no se recomiendan.

■

Tratamiento de la Caña para Semilla en Mauricio Contra el Raquitismo del Retoño

ROBERT ANTOINE, *Revue Agricole Sucrerie*, Mauritius, Vol. 36, No. 1, págs. 35-38 (1957).

Este informe trata del proceso o tratamiento con agua caliente de los tallos de caña de semilla contra el raquitismo de los retoños en cuanto a mantener el calor dentro de los tallos de caña durante un período mínimo de tiempo. Este calor o temperatura fué medido por termómetros insertados en el centro de tallos de caña de diversos diámetros (2.2 a 6.3 cm).

Ensayando con distintas variedades de caña, se encontró que en el caso de tallos más delgados, en 13 minutos se alcanzaba una temperatura de 50° C; en tallos más gruesos (más de 6.0 cm) se requerían 75 minutos para las misma temperatura, o sea una diferencia de 62 minutos. De lo anterior se estima que para cañas de diámetro regular se necesitan 30 minutos para alcanzar la temperatura deseada. Esto significa que dentro de las dos horas generalmente recomendadas para el tratamiento con agua caliente, la temperatura dentro del tallo de caña sería 50° C durante 1.5 horas, la que no sería alcanzada en cañas gruesas en el plazo de dos horas.

En un tratamiento de cañas de semilla en un horno de aire caliente a 54° C por espacio de ocho horas, la temperatura fué medida por termopilas, una en el centro y la otra en el exterior del tallo de caña. Diámetro del tallo 3.1 cm; relación de aire/caña 16:1. En este ensayo, la temperatura en la superficie del tallo llegó a 50° C al cabo de cuatro horas, mientras que la temperatura en el interior ascendió a 50° C en tres horas, lo que significa que la temperatura dentro del tallo se mantuvo a 50° C durante cinco horas. Determinaciones en distintas partes del horno de aire dieron resultados similares; las mayores variaciones fueron en el orden de 7 grados.

En general, parece que el tratamiento con agua caliente es más aceptable que con aire caliente, pero en todo caso se tiene un elemento de incertidumbre cuando se tratan tallos gruesos y delgados juntos; los tallos muy gruesos deben ser excluídos. Otra precaución sería que cuando se establece un nuevo semillero con cañas tratadas, del cual se toma material para siembra, también se tomen cañas del mismo semillero y se vuelvan a tratar con agua caliente para establecer un semillero nuevo. Si esto se repite dos o tres años, cualquier rastro de infección podrá ser eliminado por completo.

■

Aspersiones de 2,4-D Antes del Corte para Aumentar el Contenido de Azúcar en la Caña

A. S. CHAKRAVARTI y K. L. KHANNA, *Indian Journal of Sugar Cane Research*, Vol. 1, págs. 146-147, Abril-Junio de 1957.

Como se informó previamente, durante las campañas de 1954 y 1955 la Indian Central Sugar Cane Research Station, en colaboración con la industria azucarera en el estado tropical de Bihar, llevó a cabo una extensa serie de experimentos sobre el efecto de asperjar la caña de azúcar con una solución de 2,4-D en diversas ocasiones antes del corte. El tratamiento consistió en asperjar la caña en pie a razón de 60 galones de agua con 50 p.p.m. de la hormona por acre. Los resultados fueron tan halagadores que este trabajo se repitió en 1956.

Ahora se tienen los resultados de 26 ensayos, los que amparan cuatro regiones fabriles, ocho variedades de caña, cañas de planta y de retoño, siembras de primavera y de otoño, tierras de regadío y de secano. Esta trabajo experimental incluye diversas pruebas con aspersiones entre mediados de noviembre y fines de, febrero y gran variación en los intervalos entre las aspersiones y el corte, v.g. de dos días a 107 días. En 24 de

los 26 ensayos se obtuvieron aumentos sobre los rendimientos de azúcar calculados, las diferencias oscilando de 0.20 a 1.01 unidades. El aumento promedio equivale a 0.44 de unidad, incluyendo los valores de los dos ensayos que no acusaron reacción positiva. Considerando el número preponderante de reacciones positivas, la sola reacción negativa registrada parace obedecer a cierta heterogeneidad de la cosecha en cuanto a las parcelas tratadas y las de testigo. Esto se hace patente por cuanto al deseo de obtener un Brix considerablemente más alto en el jugo primario de las cañas de testigo.

Todos los datos obtenidos de los 26 ensayos fueron estudiados estadísticamente en cuanto a los efectos sobre el rendimiento de azúcar por ciento caña y en cuanto a otros factores importantes como el contenido de fibra en la caña y la pureza del jugo primario y del jugo mixto. Los aumentos en rendimiento de azúcar por ciento caña y en la pureza del jugo primario y mixto son significantes al nivel de uno por ciento. Los valores respectivos de tales aumentos son 0.44, 0.43 y 1.80 unidades. Similarmente, hubo un aumento en la pureza del jugo primario de 1.44 unidades que es significante al nivel de cinco por ciento. El contenido de fibra acusa un pequeño descenso, lo que es insignificante, estadísticamente.

El efecto se observa tan pronto como dos días después de la aspersión y no disminuye ni aun el cabo de 107 días, cuyo período representa una temporada normal de molienda más o menos. Las aspersiones se pueden hacer con resultados igualmente buenos en cualquier momento entre mediados de noviembre y fines de febrero. Todos estos puntos hacen que el método pueda ser fácilmente adoptado por la industria azucarera.

■

Tecnología

Un Año de Experiencia en el Manejo de Azúcar a Granel en el Central Guánica

ROBERT F. GOODWIZ, *Sugar Journal*, Vol. 19, No. 12, págs. 46-47 (1957).

La instalación comenzó a funcionar en mayo de 1955. El primer buque necesitó cinco días para cargar 8,700 toneladas, pero ese tiempo fué reducido a 26 horas después de haber vencido ciertas dificultades. El azúcar es retirado del almacén por dos bandas de 24 pulgs. y descargado en una banda de 30 pulgs. que pasa sobre un registrador de peso y lo entrega a varias torres de transbordo; estas torres lo distribuyen por distintos puntos a bordo del buque, de donde es tomado por el equipo arrumador y esparcido uniformemente por la bodega. A veces, estas bandas llegan a entregar hasta 500 toneladas de azúcar por hora. El régimen de flujo es regulado por un registrador-indicador de peso tipo Merrick. El almacén y el buque se comunican por teléfono. Todo el sistema de bandas puede ser puesto en movimiento o parado desde una torre de mandos al costado del buque. A fin de evitar el recalentamiento y consolidación del azúcar en el almacén fué necesario almacenarlo con un arrumador, el cual lo distribuye en capas uniformes sobre la pila. El azúcar nunca debe ser amontonado de ningún otro modo más que como cae del extremo de transportador del almacen al buque. De este modo se pueden hacer pilas hasta 38 pies de alto sin que se "queme" el azúcar.

La experiencia a la fecha ha demostrado que el azúcar se puede manejar fácilmente a granel siempre que el grano sea del tamaño y calidad adecuados. De acuerdo con las recomendaciones de la American Sugar Refining Company, el tamaño normal del grano debe ser entre 5 y 6, pero no menor de 4; conforme a esta escala, el grano tamaño 6 equivale a 1 mm cuadrado.

La operación de almacenaje requiere dos hombres para manejar el arrumador; para el almacenaje de azúcar envasada en sacos se necesitaban 19 hombres. Para embarcar azúcar a granel del almacén se necesitan siete hombres por turno, contra 98 hombres por día cuando se embarcaba el azúcar en sacos. A la fecha no se ha registrado pérdida de pol alguna en azúcares almacenados a granel.

■

Proceso de Defecación Automático Continuo con Ácido Fosfórico y Cal

E. D. GILLETTE y N. ROSENBERG, *16° Reunión* de Sugar Industry Technicians, Abril de 1957.

En una refinería por el proceso de carbón de hueso se estableció la defecación automática continua de azúcar crudo lavado por el proceso de ácido fosfórico y cal en combinación con clarificadores Jacobs continuos. En este proceso, la formación de flóculo aceptable depende de la estricta observancia de ciertas condiciones: El ácido fosfórico debe ser agregado antes que la cal; si se invierte este orden de adición, la remoción de color se reduce considerablemente. La cantidad de fosfato que ha de usarse varía con distintos azúcares, cuya variación se ha tomado en cuenta en el plan de operación. En un ejemplo dado se necesitó 0.02% de P_2O_5. La remoción de color es más completa cuando se usa suficiente cal para obtener un pH de 6.8, pero para evitar la inversión de sacarosa, el pH debe llegar a 7.0 por lo menos. Conviene evitar el uso de demasiada cal, y para buena clarificación, la ruptura entre flóculos debe indicar líquido brillante. Otros puntos a tomar en cuenta son que los flóculos no deben permanecer demasiado tiempo en el líquido, y que cualquier acción que tienda a peptizar o dispersar los flóculos debe ser evitada. La cal se usa en forma de sucrato de calcio.

Los autores describen los medios mecánicos para mantener estas condiciones en un proceso de defecación automático continuo, los que incluyen dispositivos eléctricos para mantener la relación adecuada entre ácido y azúcar, para corregir el pH para el azúcar de que se trata, para mover el material tratado sin bombeo ni agitación, para reducir al mínimo el tiempo para neutralizar el licor acidificado, para mantener el nivel correcto del líquido en todos los puntos. Todas las fases de la operación son registradas automáticamente. Los dos puntos más importantes—cambio de la relación ácido/azúcar y cambio del punto de neutralizacion del pH—resultaron ser sumamente fáciles.

■

Datos Estadísticos Fundamentales Sobre la Molienda de Caña de Azúcar

S. PEREZ ALONSO, *Memoria*, Asociación de Técnicos Azucareros de Cuba (1956).

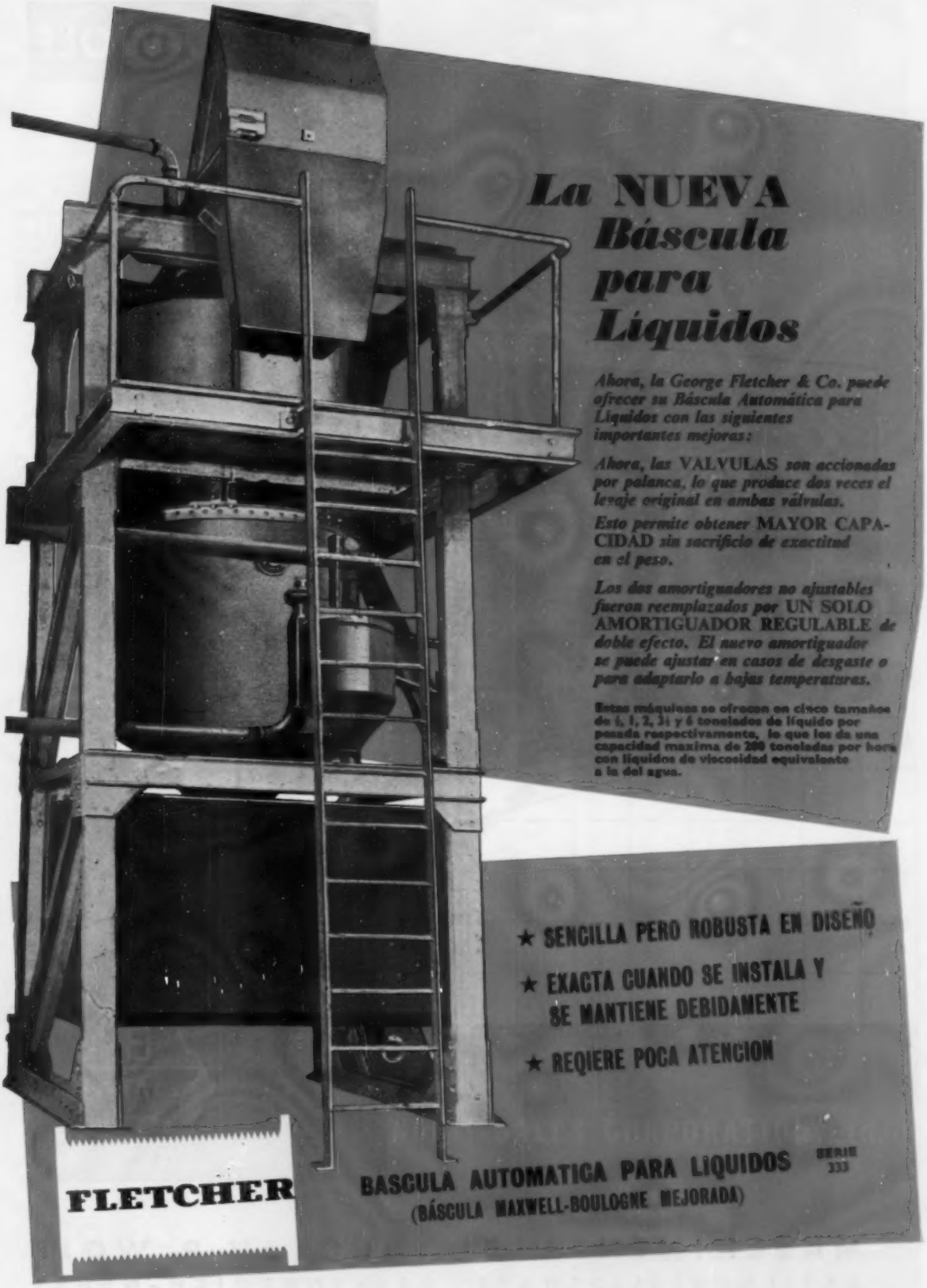
El autor de este trabajo ha recopilado datos de 10,020 ensayos de molienda publicados en varios países. Estos datos son presentados en tres tablas, como sigue:

(I)—Fibra % caña (10-18); número de observaciones (64-1166); sacarosa % fibra en bagazo (5.742-7.617); % imbibición promedia; número promedio de molinos (15-18).

(II)—Imbibición % caña (5-50); número de observaciones (15-1208); promedio sacarosa % bagazo (3.224-10.879); promedio fibra % caña (10.049-12.240).

(III)—Número de molinos (5-25); número de casos (24-1763); promedio sacarosa % bagazo (5.54-17.91).

Estos datos se presentan, tal como fueron tomados, a la atención de estadísticos profesionales que deseen deducir correlaciones generales útiles entre los factores citados.



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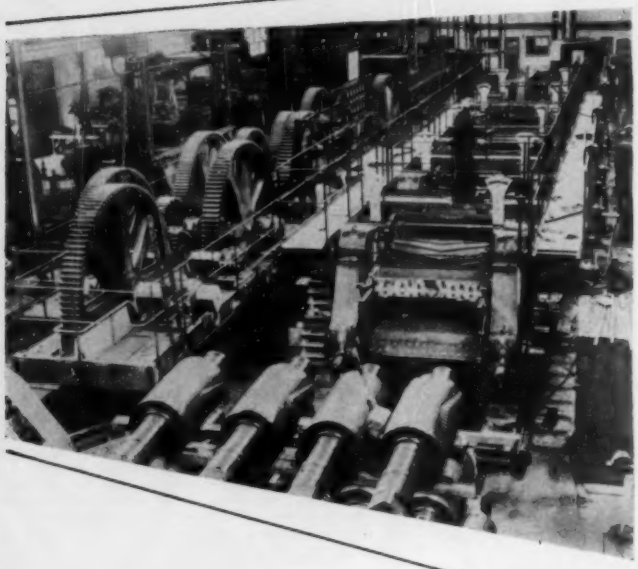
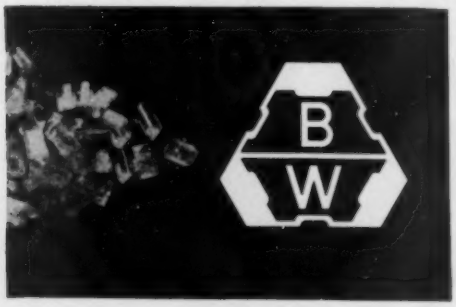
están fabricando maquinaria azucarera de construcción esmerada para cada sección de ingenios de caña y de remolacha asi como para refinerías. Ellos están bien acostumbrados a considerar los problemas de sus clientes asi como a proyectar, construir, suministrar y montar instalaciones para necesidades individuales.



Trapiche de 15 mazas para caña de azúcar del tipo BUCKAU durante el montaje



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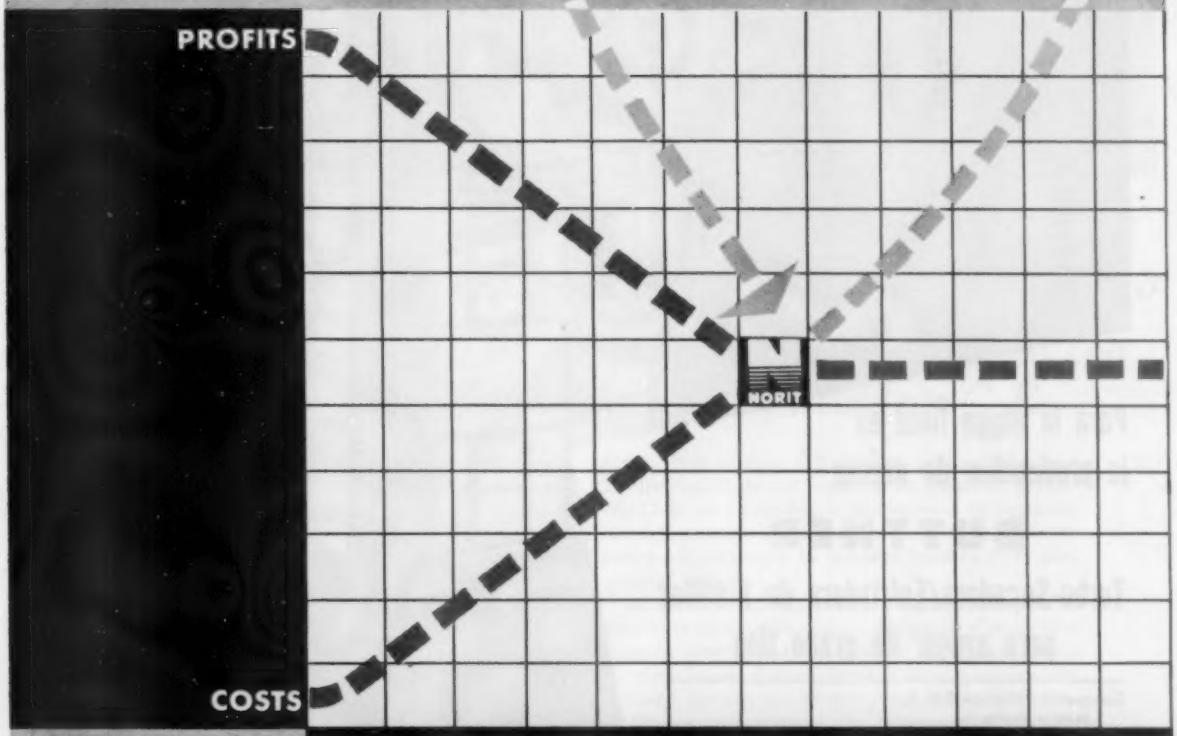

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Demostración en la Feria de Comercio, del proceso en miniatura, por el cual el bagazo se convierte en furfural en La Central Romana.
Foto por cortesía del Centro Información de la Republica Dominicana

Otro año de progreso en una planta precursora

La primera productora de Furfural en la América Latina aumenta su capacidad—instala otra caldera C-E

La República Dominicana está merecidamente orgullosa de La Central Romana, una nueva e interesante industria. Es la primera planta en la cual el *bagazo* se convierte en *furfural* — importante material para la producción de Nylón y otros productos químicos. Ahora, después de tres años de operación, la capacidad de la planta será aumentada para poder satisfacer la creciente demanda por su producto.

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En toda la América Latina, el equipo C-E goza de excelente reputación por su eficiencia y economía. Cuando *usted* tenga que comprar equipo generador de vapor o para quemar combustibles, o equipo relacionado, permita que le enviemos nuestra cotización.

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Combustion Engineering Building
200 Madison Avenue, New York 16, N. Y., E.U.A.

C-113A

TODO TIPO DE EQUIPO PARA GENERACION DE VAPOR, PARA QUEMAR COMBUSTIBLES Y EQUIPO RELACIONADO; REACTORES NUCLEARES; EQUIPO PARA FABRICAS DE PAPEL; PULVERIZADORES; SISTEMAS PARA SECAR INSTANTANEAMENTE; RECIPIENTES DE PRESION; TUBERIAS DE EVACUACION

CON Dicalite, la regulación de la calidad se hace más fácil—porque con los auxiliares filtrantes Dicalite usted puede filtrar con tanta precisión que casi todas las partículas indeseadas son eliminadas—incluso los coloides submicroscópicos y las bacterias termofílicas.

Los técnicos azucareros mismos han probado este importante hecho innumerables veces, tanto en el laboratorio como en trabajos de fábrica. Y sus pruebas también confirmaron el hecho que los auxiliares filtrantes Dicalite—que son esterilizados durante su preparación—no sustentan bacterias vivas.

Los auxiliares filtrantes Dicalite—químicamente inertes y físicamente estables—no pueden afectar el sabor de modo alguno. Estos auxiliares filtrantes son positivamente uniformes, partida tras partida, debido a las rigurosas normas de control observadas en la preparación de todos los grados Dicalite.

Dependable GLC GREAT LAKES Dicalite® DIATOMACEOUS MATERIALS

Solicite un ejemplar gratuito del nuevo "Dicalite General Filtration Bulletin" (Boletín Dicalite de Filtración en General) —B-13

Dicalite Department, Great Lakes Carbon Corp.
612 S. Flower St., Los Angeles 17, Calif.

Soberana del Cañaveral . . .

La Cargadora de Caña BUCYRUS ERIE 22-B de Servicio Pesado

Con la Cargadora de Caña 22-B de Servicio Pesado, las operaciones de carga se realizan rápidamente. Sus detalles de construcción especiales para trabajos eficientes de carga de caña—aunidos a la famosa calidad prácticamente probada del diseño y construcción Bucyrus-Erie—le ahorran tiempo, trabajo y dinero.

Los dos cables del arpeo de caña son gobernados por una sola palanca. Un tensor automático en el cable de suspensión ajusta la soltura instantáneamente, con lo que se obtiene un gobierno rápido y seguro del arpeo. El izador independiente del botalón, cuyo descenso es gobernado mecánicamente, permite cambiar el ángulo del botalón en cualquier punto del ciclo y depositar la carga con precisión.

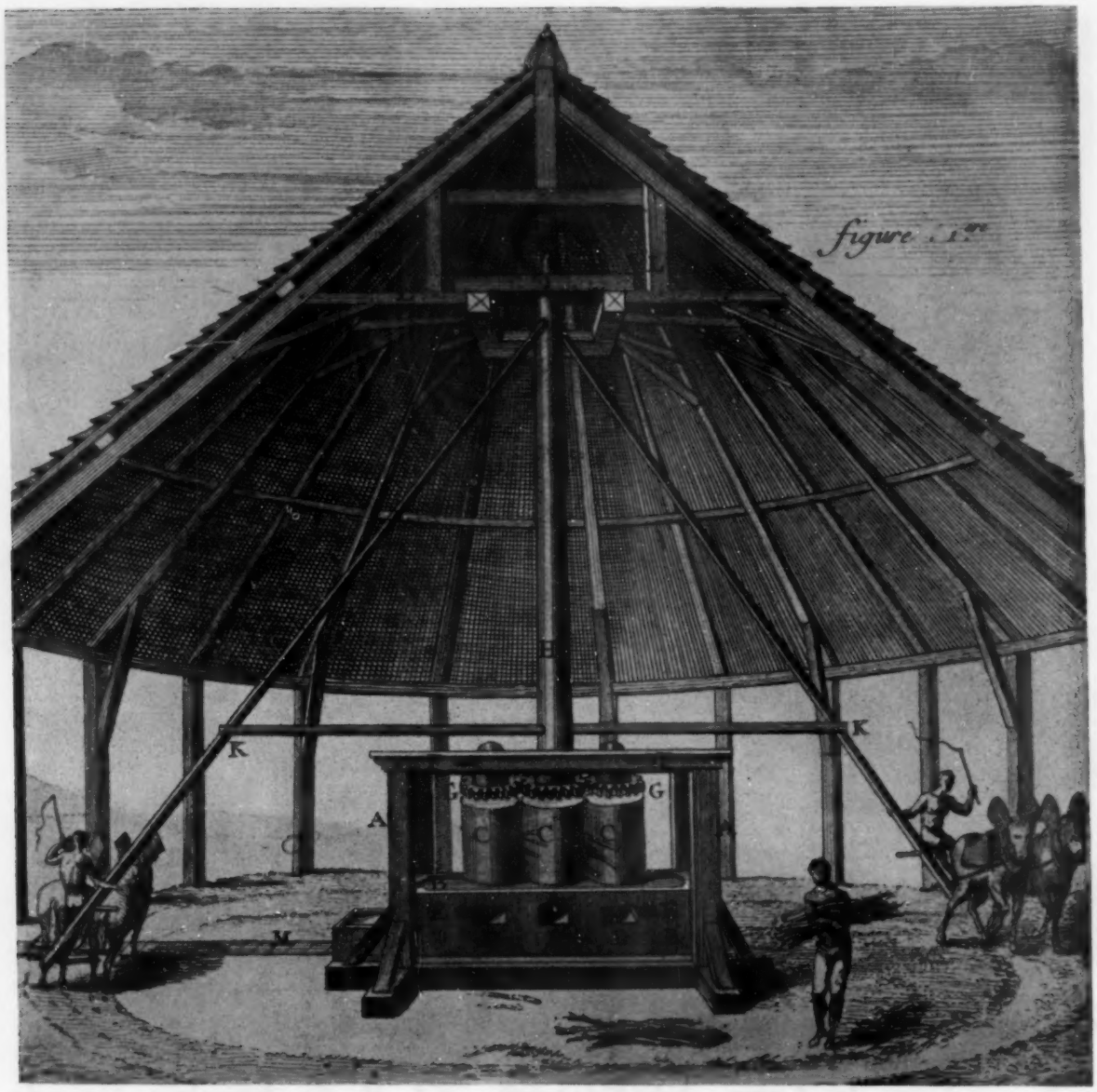
El montaje de carriles de servicio pesado de la Cargadora 22-B, con garras profundas tipo de tractor, le da la altura y tracción necesarias para funcionar en terrenos resbalosos o en pendientes. Los trinquetes de retención de avance positiva proporcionan seguridad adicional, especialmente en pendientes. Su propulsión de dos velocidades facilita su traslado de un cañaveral a otro. Para mayor seguridad en pendientes, un mecanismo de interconexión mantiene acoplado en todo momento uno de los embragues de la dirección.

El distribuidor de Bucyrus-Erie en su comarca le puede dar toda clase de datos sobre éstos y otros detalles de la Cargadora de Caña Bucyrus-Erie 22-B de Servicio Pesado. Véalo cuanto antes, o escríbanos directamente.

401E57

BUCYRUS-ERIE COMPANY

SOUTH MILWAUKEE, WISCONSIN, E.U.A.



Ayer, la caña de azúcar se molía en trapiches primitivos movidos por mulas. El trabajo de alimentar la caña al trapiche y retirar el bagazo se hacía totalmente a mano. De "Econmie Rustique-Sucrerie" grabado e impreso en Francia entre 1760-1780.

HOY . . . los métodos modernos producen mejor azúcar

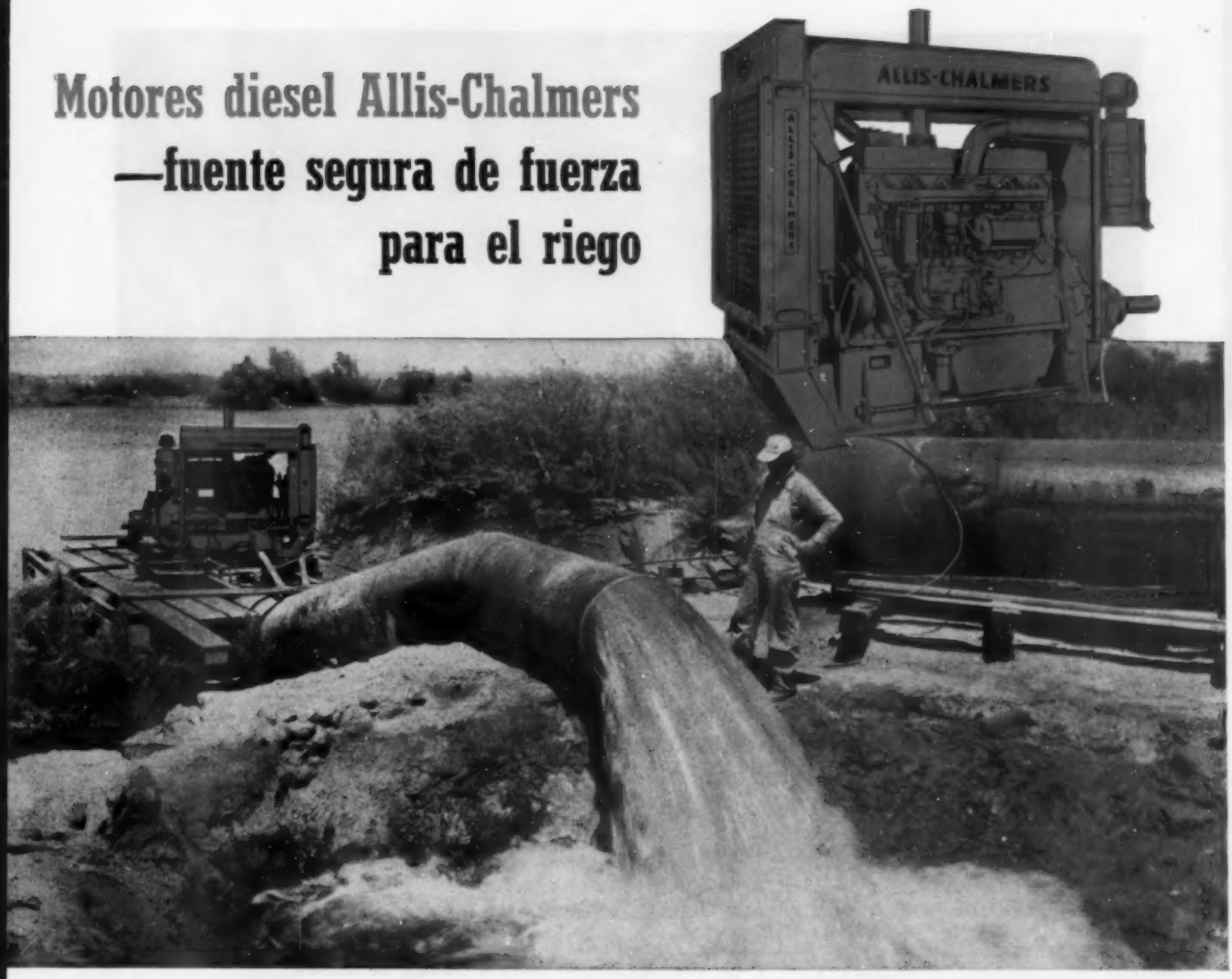
. . . y el carbón DARCO® activado es el método de refinación más moderno.

Para obtener un ejemplar de la ilustración anterior, propia para montar en cuadro, escriba a la Atlas hoy mismo.

DARCO
MARCA REGISTRADA

DIVISIÓN DE PRODUCTOS QUÍMICOS
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE, E. U. A.

Motores diesel Allis-Chalmers —fuente segura de fuerza para el riego



Los motores Allis-Chalmers constituyen una fuente segura y económica de fuerza para el riego, lo cual es de suma importancia para proteger la producción y la renta de una explotación de caña de azúcar. Los motores han sido proyectados para trabajo pesado y para funcionar continuamente por largos períodos de tiempo, año tras año.

Gracias a su fuerte construcción y a sus potencias de régimen asignadas moderadamente, estos motores requieren poquísimo trabajo para conservarlos en buen estado. Por ejemplo: el Modelo D-844, que se ve arriba, desarrolla 163 cf a una velocidad regulada de 1400 rpm. Funciona fácilmente con una carga normal desarrollando amplia fuerza de reserva . . . dura más . . . rinde más . . . a bajo costo de funcionamiento y conservación. Su sistema único de combustión, que ha sido desarrollado por Allis-Chalmers, produce más fuerza por litro de combustible.

Los motores diesel Allis-Chalmers van dotados de un sistema electrico de arranque directo, y pueden obtenerse de todos los tamaños y tipos que generalmente se utilizan para el riego.

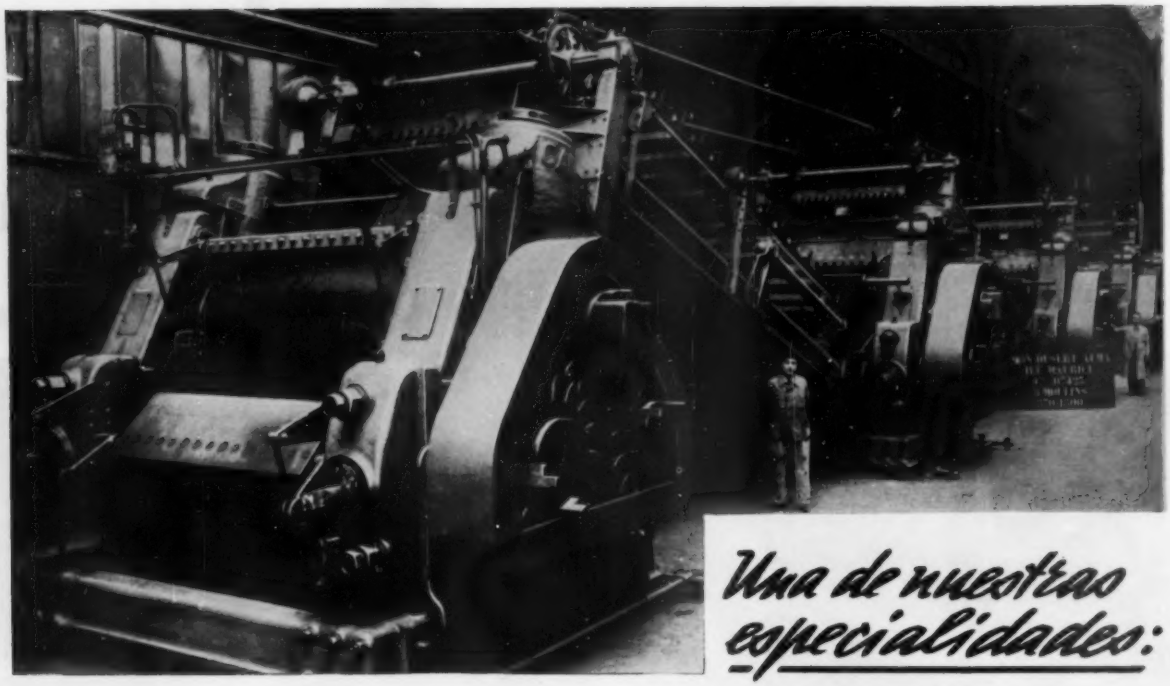
Muchos millares de motores Allis-Chalmers se emplean en la actualidad. Son hechos en gran escala en fábricas modernas con las máquinas herramientas más eficaces que existen.

Solicite detalles completos a los distribuidores de motores Allis-Chalmers en su región.

ALLIS-CHALMERS INTERNATIONAL, DEPARTAMENTO AZ1157
MILWAUKEE 1, E.U.A.

ALLIS-CHALMERS

Fabricantes de maquinaria desde 1847



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EL EQUIPE DE AZUCARERAS DE CAÑA

Legenda : Molinos de 870 × 1.800 m.

200 Azucareras equipadas en el mundo entero

En el más breve plazo, CAIL ha abastecido todos los países productores del mundo :

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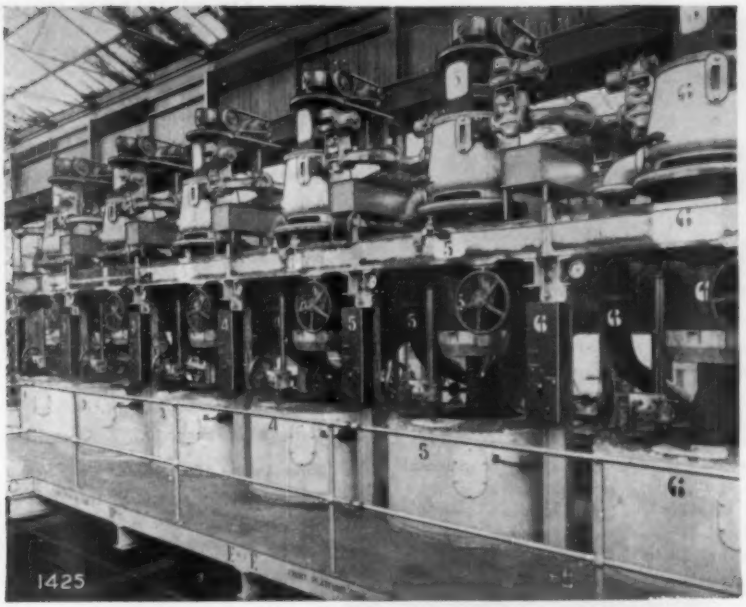
R L DUPUY • PARIS



CENTRIFUGAS

Movidas

Por Agua

Esta batería de centrífugas semiautomáticas movidas por agua funciona a una velocidad óptima de 1500 r.p.m. Cada centrífuga está provista de un motor eléctrico auxiliar con caja de engranajes y embrague automático para darle una velocidad de descarga de 50 r.p.m. Estas centrífugas están provistas de frenos enfriados por agua, descargadores mecánicos, y válvulas de mezclador, canales de escurrimiento y válvulas de agua accionadas mecánimente. El lavado es automático. La batería viene completa con compresor de aire y precalentador de masacocida tipo Blanchard en el mezclador.

POTT, CASSELS & WILLIAMSON

MOTHERWELL - LANARKSHIRE - SCOTLAND

***Cable:* Pott: Motherwell**

P&W

Protegiendo al Productor de Azúcar

(*Viene de la página* 48)

los futuros (fechas de entrega), ambas partes quedan libres para liquidar su trato según lo crean conveniente. Tanto el comprador como el vendedor proceden independientemente en la venta de sus tenencias. En el caso del productor, éste venderá su contrato según lo crea justificado por el mercado, mientras que el comprador de disponibles cubrirá su adquisición según lo crea más conveniente.

En cuanto al productor, él también puede valerse del trámite de trueque para convertir ventas de futuros protegidos en ventas de disponibles. En tal caso, supongamos que un productor cubrió 10,000 toneladas de azúcar crudo para entrega en julio a un precio promedio de 4.00 cts. Subsiguientemente, el mismo productor vende este azúcar en un trámite "Contra Disponibles," por el cual el precio de compraventa se fija en 3.90 cts. tanto para disponibles como para futuros. El productor, al adquirir futuros para julio en este trámite ampara la protección previamente establecida, concluyendo con ello el trámite de disponibles y futuros. Entonces, la liquidación se haría como sigue:

Precio de la venta original cubriendo los futuros	4.00¢	
Precio de venta de crudos		3.90¢
Precio de compra de futuros en el trámite "Contra Disponibles"	3.90¢	
Ganancia en futuros	.10¢	
Comisión sobre futuros (al tipo cargado a socios)	.013¢	
Ganancia neta en futuros		.087¢
Ingreso neto sobre crudos		3.987¢

Por la ilustración anterior puede verse claramente que el trámite "Contra Disponibles" falicita la conversión de ventas de futuros protegidos en ventas de azúcares disponibles. De igual modo, el comprador de crudos puede convertir futuros para entrega lejana en crudos disponibles o puede cubrir su compra. En ambos casos, el resultado de esta clase de trámite, en lo que al comprador y vendedor se refiere, lo determinaría la posición previamente adquirida en futuros.

De modo que en cuanto al productor, el trámite "Contra Disponibles" se puede considerar útil bajo dos aspectos. Primero, como medio de reponer inmediatamente ventas de disponibles con futuros, y segundo, como una forma de cubrir una posición en futuros protegidos y al mismo tiempo realizar una venta de disponibles.

Formas Especiales de "Hedging"

Después de haber tratado con bastante profusión las tres formas fundamentales de operaciones en el mercado de azúcares futuros, debemos mencionar que existen varios refinamientos en los métodos de "hedging" que la limitación de espacio nos impide discutir. Algunas de estas operaciones son complicadas y fueron concebidas para satisfacer ciertas necesidades del sistema de "hedging." Cualquier corredor versado en el ramo puede ofrecer las recomendaciones que convengan a aquellos que confronten problemas de ventas en las que entran azúcares futuros. Sería muy conveniente para todo productor (especialmente aquellos que no acostumbran servirse de la Lonja) que estudiase cómo las formas de trámites en el mercado de azúcares futuros pueden favorecer sus programas de ventas.

Creciente Utilidad de la Lonja

Hemos observado que una extensa sección de la comunidad azucarera, incluyendo los más importantes intereses internacionales y nacionales, ha encontrado que el mercado de azúcares futuros es una valiosa ayuda en el logro de un programa de compraventa bien administrado. El constante y creciente interés en azúcares futuros ha logrado establecer una Lonja o mercado cada día más importante, donde los compradores y vendedores de azúcar pueden contratar unos con otros para su beneficio mutuo.

¡Este motor BROOK FUE DISEÑADO PARA la Industria Azucarera!

Los motores Brook son construidos conforme a las normas de la NEMA (Nat. Elec. Mfrs. Assn.) para servicios pesados y para funcionar continuamente a temperaturas extremas. Estos motores han establecido un envidiable récord en la industria azucarera mundial impulsando desmenuzadoras, bombas, circuladores, centrífugas, granuladores, elevadores y transportadores. Usted no puede obtener un motor mejor, aunque **su costo es menor** que el de motores corrientes. Solicite folleto descriptivo.

MOTORES DE 1 A 600 C.F.
Abiertos y a Prueba de Goteo, Totalmente Cerrados y Enfriados por Ventilador, Totalmente Cerrados Sin Ventilador, con Brida NEMA o Brida "D", con Eje Largo para Bombas, y Especiales.

Representantes de la Brook en o cerca de casi todos los centros productores de azúcar en el mundo.

BROOK MOTOR CORPORATION
3553 W. Peterson Ave., Chicago 45, Ill., E. U. A.

Desde 1904
BROOK MOTOR CORPORATION

SE VENDEN LOS SIGUIENTES EQUIPOS:

1—Doble desmenuzadora, Marca Fulton, con mazas de 32" x 69", muñones de 15" x 20", completa con vírgenes, pedestales,—bancazos, tren de engranes, etc., sin motor.

2—Calderas Walsh & Weidner de tubos de agua rectos, de—6,115.83 pies² de superficie de calefacción, presión de—trabajo de 150 libras por pulgada cuadrada, completas con sus válvulas, sistema de agua de alimentación marca Copes, con hornos de herradura para quemar bagazo, 2 quemadores—de petróleo marca Peabody de atomización por vapor, ventiladores de aire forzado para hornos de bagazo y quemadores petróleo, ventilador de tiro inducido, etc.

1—Turbo-generador marca General Electric de 1,000 KW con generador y excitador directamente acoplado. Turbina tipo—Curtis, No. 37326, 1 paso, 3,600 RPM, presión vapor de entrada 150 libras por pulgada cuadrada, presión de escape—20 libras por pulgada cuadrada. Generador No. 4219172, Ti po ATB-2, 1,250 KVA, 3,600 RPM, Forma HT, Factor de Potencia 0.8, 3 fases, 60 ciclos, 2,300 volts.

1—Equipo completo de Ferrocarril para el acarreo de caña,—con vía de 36", compuesto de lo siguiente:

5—Locomotoras de vapor, con pesos de 70, 48, 45, 20 y 18 toneladas.
133—Góndolas cañeras con capacidad de 12 tons.
45—Góndolas cañeras con capacidad de 8 tons.
24—Góndolas cañeras con capacidad de 6 tons.
5—Carros tanques con capacidad de 5,000 lts. cada uno.
20—Kilómetros de vía de 36" con riel de 40 libras por—yarda, durmientes, cambios y demás accesorios.
1—Volteador de carros cañeros.

Para mayores informes dirigirse a:
Ingenio "El Potrero", S. A. Potrero, Ver., México
Vía F. C. Mexicano

La Imperial

(Viene de la página 50)

jar a granel el cien por ciento de los crudos recibidos para su refinación, y viene a ser una de las más modernas en el mundo entre las refinerías que manejan sus crudos a granel.

Con la construcción de un nuevo departamento de derretido de cuatro pisos, la Imperial está a punto de terminar un programa de diez años de construcción, dice el Sr. Louviere. El nuevo departamento se encuentra en vías de construcción y se espera que quede terminado en la próxima primavera.

Cuando el nuevo departamento de derretido quede terminado, la Imperial Sugar Company, establecida hace 114 años, tendrá lo que puede llamarse una refinería completamente nueva, como resultado de su inversión de más de 7 millones de dólares desde 1947 en nuevos edificios y modificación y modernización de otros edificios.

ADVERTISERS' INDEX

November 1957

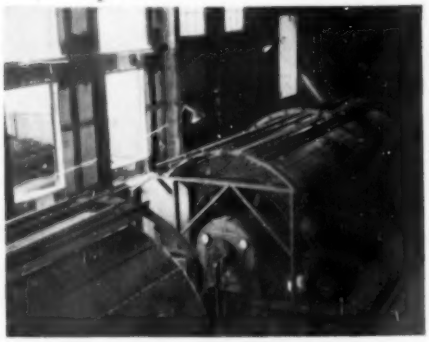
Allis-Chalmers Manufacturing Co. 61
American Air Compressor Corp. 38
Bethlehem Steel Export Corp. 16
Brill Equipment Company 38
Broadbent & Sons Ltd., Thomas 12
Brook Motor Corporation 64
Bucyrus-Erie Company 59
Buttner-Werke 56
Cail 11, 62
Chemical Industries Exposition 35
Combustion Engineering, Inc. 57
Corrigan Company, Inc., J. C. 39
Darco Dept., Atlas Powder Co. 4, 60
Dennery Factory Company, Ltd., The . . . 38
Dicalite Div., Great Lakes Carbon Corp. . . 58, Cover IV
Dorr-Oliver, Inc. . . . . 1, Cover III
Farr & Company 3
Farval Corporation, The . . . . . Cover II
Fives-Lille, Compagnie de 14
Fletcher & Co. Ltd., George 33, 53
Fletcher Works, Inc. 37
Fulton Iron Works Company 17
Gelb & Sons, R. 38
Green & Sons Ltd., E. 34
Industrial Filter & Pump Mfg. Co. 18
Ingenio "El Potrero", S.A. 38, 64
Jeffrey Manufacturing Co., The 7
Leffingwell, Roy J. 38
Link-Belt Company 13
Lowry & Company, Inc. 3
Madhvaninagar Sugar Works Ltd. 38
Monitz, Wallack & Colodney 35
Norit 55
Pott Cassel & Williamson 63
Reich & Associates, Gustave T. 38
Rose, Inc., E. A. 38
St. Mary Iron Works 2
Savannah Sugar Refining Co. 35
Smith & Company Ltd., A. & W. 40
Societe Sucriere D'Etudes 6
Spreckels Sugar Company 38
Squier Corporation, The 9
Standard Steel Corporation 35
Stanhope, Inc., R. C. 38
Stein Equipment Company 38
Stephens-Adamson Manufacturing Co. . . . 10
United States Steel Export Co. 36
Western States Machine Co., The 5
Wolf, Buckau R. 8, 54
Wyandotte Chemicals Corporation 15

El Primer RapiDorr en Hawaii...

El Ingenio Paia Maneja con Exito Jugos de Caña Recogida a Máquina

Nuevo clarificador RapiDorr de 22′ de diám. para jugo de caña en el Ingenio Paia de la Hawaiian Commercial and Sugar Co., Ltd.

Vista de dos nuevos filtros Oliver-Campbell de 8′ x 16′ en acero inoxidable para cachaza en el Ingenio Paia.



Como parte de su programa de modernización para 1956, la Hawaiian Commercial and Sugar Co., Ltd. instaló un clarificador Rapi-Dorr de 22′ para jugo de caña y dos filtros Oliver-Campbell de 8′ x 16′ en acero inoxidable para cachaza en su Ingenio Paia.

El nuevo clarificador Rapi-Dorr tiene un volumen de 59,000 galones y maneja aproximadamente el 75% de la corrida total de jugo. El resto del jugo se clarifica en un clarificador tipo Multifeed de 18′ de diám., con un volumen de 31,400 galones. El Ingenio Paia muele alrededor de 3,300 toneladas de caña diarias.

Los buenos resultados logrados en la operación del nuevo RapiDorr en el Ingenio Paia confirman prácticamente el excelente funcionamiento de este aparato aún en el manejo de jugos con tan alto contenido de sólidos como los obtenidos de cañas recogidas a máquina.

RapiDorr—M.F. Reg. Of. Pat. E.U.A.

CANE SUGAR DIVISION — DORR-OLIVER INCORPORATED — STAMFORD, CONNECTICUT

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Dicalite traps thermophiles

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This important fact has been proved, times without number, by sugar men themselves, both in their own laboratories and in actual plant operation. And their tests have also established the fact that Dicalite Filteraids, which are sterilized in processing, do not support bacterial life.

Chemically inert and physically stable, Dicalite Filteraids cannot affect flavor in any way. And Dicalite Filteraids are dependably uniform, one lot after the other, due to the extremely rigid controls exercised in processing all the grades of Dicalite Filteraids.

Dependable GLC GREAT LAKES Dicalite® DIATOMACEOUS MATERIALS

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